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AUTHOR	Havelock, Mary C.; Havelock, Ronald G.
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ABSTRACT

Using the case study approach, the Merrimack Education Center was examined (1) to test the linkage model developed by Ronald Havelock, (2) to provide a model description for the benefit of others who wished to duplicate the center's program, and (3) to provide feedback to the center itself. The study produced a thumbnail sketch of the center; a description of the principal linkages between the center and local education agencies' resource persons and groups, and practitioner persons and groups; a description of the center's philosophies and strategies; a description of the center's major programs; an identification and verification of the important impacts of the center; and an identification of the weaknesses in the center's role as a linkage agency. To acquire information, extensive on-site interviews were conducted with local education agency members, and data were also obtained from the school system clients of the center. The result of the case study documents in detail the innovations in the center's local education agencies as a result of knowledge utilization and fully describes the processes of resource utilization, communication, and innovation in a systematic manner. (JY)

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PROJECT LINKER
FINAL REPORT

Contract No. CEG-0-71-3842

CASE STUDY OF THE
MERRIMACK EDUCATION CENTER

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Principal Investigator: Richard J. Lavin, Ed.D.

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Prepared by:

Mary C. Havelock
and
Ronald Havelock

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ABSTRACT

This report is submitted as the final report on PROJECT LINKER (OEC-0-71-3882). The grant period extended from January 1972 through August 1973.

This case study attempts to document innovation in the Merrimack Education Center's L.E.A.'s as a result of knowledge utilization. The purpose of the case study is to document the structure and processes of resource utilization, communication, and innovation in a systematic manner.

This case study format is viewed as effective in examining the effects of a regional, collaborative, information service. It is also useful in testing out hypotheses about innovation and knowledge utilization which lend themselves to the research/practice implications.

The case study is seen as useful for the Merrimack Education Center, and other organizations and agencies performing similar functions, for future guidance of information dissemination and utilization support activities. Major process elements studied include linkages to internal and external resources, establishing relationships, and problem-solving strategies.

PROJECT LINKER
FINAL REPORT

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Introduction

The LINKER PROJECT, funded through the Task Force on Dissemination (NCEC) now located within the National Institute of Education, resulted in eighteen months of activities. This final report is being submitted to document the efforts of LINKER (Local Information Network of Knowledge for Educational Renewal) within the context of a longitudinal perspective, beyond the 18 month period of the grant award. The information component, with delivery sub-systems for knowledge utilization, operates within the larger framework of the linker or "broker" concept.[1]

In attempting to describe the 18 month period from a longitudinal perspective, the approach of a "case study" was selected. A case study was inaugurated for this purpose and the entire information component evaluated with results presented of the utilization of information under Project LINKER.

In selecting the case study method, the following question was deemed paramount: "What is the major purpose of this evaluation?" In response to this question, the purpose of the evaluation, in the larger sense, is to gain fuller understanding of the quantity and quality of information/knowledge utilization. The primary purpose of this type of data collection is to assist the staff of the Merrimack Education Center to reflect upon the data of the evaluation that would be useful for long-range planning.

Another major purpose for the selection of the case study approach is to provide other individuals, in various organizations and agencies, the opportunity to avail themselves of a useful project deemed "successful" that can be transplanted to other information centers.

Therefore, we are pleased to report to the National Institute of Education by filing this in-depth case study of the Merrimack Education Center, a product in its present format. As successful as this product may be in its present state, this type of information may suggest a small overview or publication that could be developed and utilized as awareness information to be circulated nationally. We believe this type of awareness publication should be disseminated through State Departments of Education, through Chief State Officers, Universities, and other information centers.

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[1]This broker/linker concept has been documented in: R. Lavin, "Establishing Effective Linkages at the Local Education Agency Level." Paper presented to the A.E.R.A., 1971.

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Case Study Objectives

The case study itself is quite comprehensive and extensive. It is believed that this brief summary will enable the reader to focus in on key issues and current areas of needed research. The case study has provided us with many insights into the knowledge utilization problem and the specific problems of linking theory and practice.

The case study is written in the narrative describing innovations and implications of events. Additionally, analytic information supplied in the case study lends light upon the specific aspects of the process of knowledge utilization. Major sections of this case study correspond to the major categories of the linkage theory purported by Mary and Ronald Havelock. A synthesis and summary of Project LINKER, in the form of a case study, represents an exemplary site. However, the focus of the report, provided through the major categories and evidenced by the table of contents, is placed upon a thorough description of the setting and the process for educational change.

Intended in this case study by the Havelocks is an empirical follow-up to contrast theories of knowledge utilization with what is actually happening on-site. For this reason, the Havelocks constructed a consistent, systematic framework which traces the intersystem linkages and the various stages through which educational change has been effected in the Merrimack Communities. A major objective of this case study, then, is to document through empirical measures the resource linkage and utilization related to educational change in twenty-one L.E.A.'s.

Benefits to Others

Although, as mentioned above, this case study is of an exemplary site in Massachusetts, it is believed that this situation is not unique but has applicability to other sites. This situation described is representative of patterns of comparability and generality that apply to many educational settings across the nation. It can provide others faced with similar needs for problem-solving, the necessary understandings to:

* comprehend the structures and dynamics of educational change

* generalize from an in-depth description of a particular setting and process by which major innovations are implemented to apply to their own unique situations.

The details describing the process and its impact on communities in Northeastern Massachusetts will no doubt lead to many questions that educators nationally will be likely to raise. This is expected since innovations through knowledge utilization entails a very complex process. For this reason, it is necessary to examine the

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the setting and provide a longitudinal perspective. This is supplied in the case study by tracing the sequence of events from initial awareness of needs (1968) to the present, and long-range future of MEC.

This type of case study description and analysis of a major knowledge utilization site has tested out specific hypotheses about innovation derived from reviews of the investigator. It has attempted to measure the effects of well-coordinated information and resource linkage services through quantity, quality, and impact parameters. It remains to be seen if this case study can serve as a general resource for research by investigators from other organizations, decision-makers and practitioners, who wish to improve their knowledge utilization practices.

CASE STUDY OF THE MERRIMACK EDUCATION CENTER

DR. RONALD G. HAVELOCK
CENTER FOR RESEARCH UTILIZATION ON SCIENTIFIC KNOWLEDGE
INSTITUTE FOR SOCIAL RESEARCH
UNIVERSITY OF MICHIGAN
ANN ARBOR, MICHIGAN

AND

MARY C. HAVELOCK

PREPARED FOR:

DR. RICHARD J. LAVIN
EXECUTIVE DIRECTOR
MERRIMACK EDUCATION CENTER
CHELMSFORD, MASSACHUSETTS

SUBMITTED TO:

THE GOVERNOR'S COMMISSION ON SCHOOL DISTRICT
ORGANIZATION AND COLLABORATION
MASSACHUSETTS ADVISORY COUNCIL ON EDUCATION
BOSTON, MASSACHUSETTS 02111

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CASE STUDY OF THE MERRIMACK EDUCATION CENTER

INTRODUCTION

In past writings Havelock has described a "Linkage" model by which educational practice could be improved through the more effective utilization of research-based knowledge and resources. The Merrimack Education Center has established itself as a linking mechanism, guided in part by the Havelock proposals. The present study therefore provides an opportunity to delineate the linkage model in terms of a specific case with three primary purposes:

1. To test the Linkage model through comparison with an actual case where its application was carefully and deliberately planned and executed.
2. To provide a model description for the benefit of other persons and groups throughout the country who might wish to begin such a linking agency or transform their existing organizations in this direction.
3. To provide feedback to the Merrimack Education Center, itself, for judging the effectiveness of existing operations and adequacy of fit with the model.

These purposes will be achieved through an analysis structured as follows:

1. A thumbnail sketch of the Merrimack Education Center, including its origin, history, major current function, staffing pattern, facilities and funding pattern.

2. A description of the principal linkages between the Merrimack Education Center and:

   (a) Resource persons, organizations and systems.

   (b) Practitioner persons, organizations and systems.

3. A description of the philosophies and strategies of helping employed by Merrimack Education Center professional staff individually and as a whole, which compares these with theoretical models of helping, dissemination, utilization and planned change.

4. A description of the major programs of the Center, the adequacy of their functioning, the extent and importance of their impact on the region, their interrelationship with one another, and their goodness of fit to an overall "Linkage" strategy.

5. An identification and verification of the important impacts of the Center as a whole in its region.

6. An identification of gaps or weaknesses in the Merrimack Education Center as a linkage agency.

To acquire information from the perspective of the Center, extensive on-site interviews were conducted with two principal Center staff members; these interviews were supplemented by a review of significant written products of the Center. Data were also obtained from the school system clients of the Center by telephone interviews with school personnel in each district who have been selected to act as linkage agents between their school districts and the Center.

I. OVERVIEW OF MERRIMACK EDUCATION CENTER AND ITS CLIENTS

A. THE CENTER

The Merrimack Education Center began in 1968 as an organization for the purpose of initiating change in twenty school districts of the Merrimack Valley of northeastern Massachusetts. The initial stimulus for the Center was provided by Title III of the Elementary and Secondary Education Act of

1965 which called for three year grants to localities across the nation to initiate innovative projects of all kinds. Since then it has moved into a position of being supported equally by the school districts which it serves and by federal grants. It plays the role of an educational "broker," linking the school districts with resources at the local, state and national levels.

Services and products offered by the Center have stemmed largely from four major project areas, which will be described in full below. These projects, however, operate interdependently and each has the goal of satisfying client needs to the fullest extent possible by assembling and bringing to bear all available relevant resources.

Client needs are formally assessed on an annual basis; the Center responds to these articulated needs by providing in-service courses to teachers and administrators and by making information packages available in high need areas.

Need areas which have emerged as particularly salient in a substantial number of school districts or buildings have been responded to with more elaborate programs. Emerging as a need early in the life of the Center, and continuing as an intense interest, was the area of individualization, particularly in elementary schools. This interest has resulted in the coordination by the Center of a league of 14 IGE*("Individually Guided Education") schools in the region. More recently the need for the development of skills of leadership and change management for administative personnel has been identified, resulting in an in-service program for principals and a series of conferences for superintendents and school board members.

*At the end of this report a glossary is provided which gives the full names of programs, institutions, etc. which, for convenience, are sometimes referred to only by initials in the report.

Needs of individual educational personnel are also ascertained on a more informal basis through contacts established by field agents who visit each school regularly. Information Representatives have been identified in each district who serve in a linkage capacity, bringing needs and requests of individual teachers to the attention of the field agent or directly to the retrieval personnel at the Center. Each request for information is handled on an immediate basis with materials being provided either in microfiche or in hard copy form.

As a part of this information exchange service, educators are now being asked to submit to the Center any locally developed curriculum materials which might be of interest to other practitioners in the state. A curriculum exchange bank is thus being developed which is highly relevant to the needs of the local districts.

Information materials are also gathered from sources across the country. These include the products of the Regional Educational Laboratories and private development companies as well as information compendiums from various sources. Chief among these is the ERIC (Educational Resources Information Center) file, which is searched on every information request.

In order to operationalize the use of ERIC documents on microfiche, the Center has established a system to which every district in the region subscribes. Included in the annual subscription are a microfiche viewer, ERIC document indices covering the years 1966 to the present (73,000 documents in the total file), monthly RIE's (Research in Education [a journal of educational R&D document abstracts]), and 200 microfiche documents delivered on request.

Strong ties with local colleges and universities have enabled the Center to carry out its extensive in-service education program. Personnel from several institutions serve as instructors, while Fitchburg State College confers graduate credit on educators participating in the courses.

Reliance on personnel both within the school systems and in the local communities has enabled the Center to keep its own professional staff to a minimum. School personnel act as Information Consultants and Specialists or serve on an In-service Commission, while external resource persons serve as consultants or course instructors on an ad hoc basis. The Center feels that this arrangement optimizes the delivery of products and services while minimizing the necessity of a Center maintenance orientation and high overhead costs.

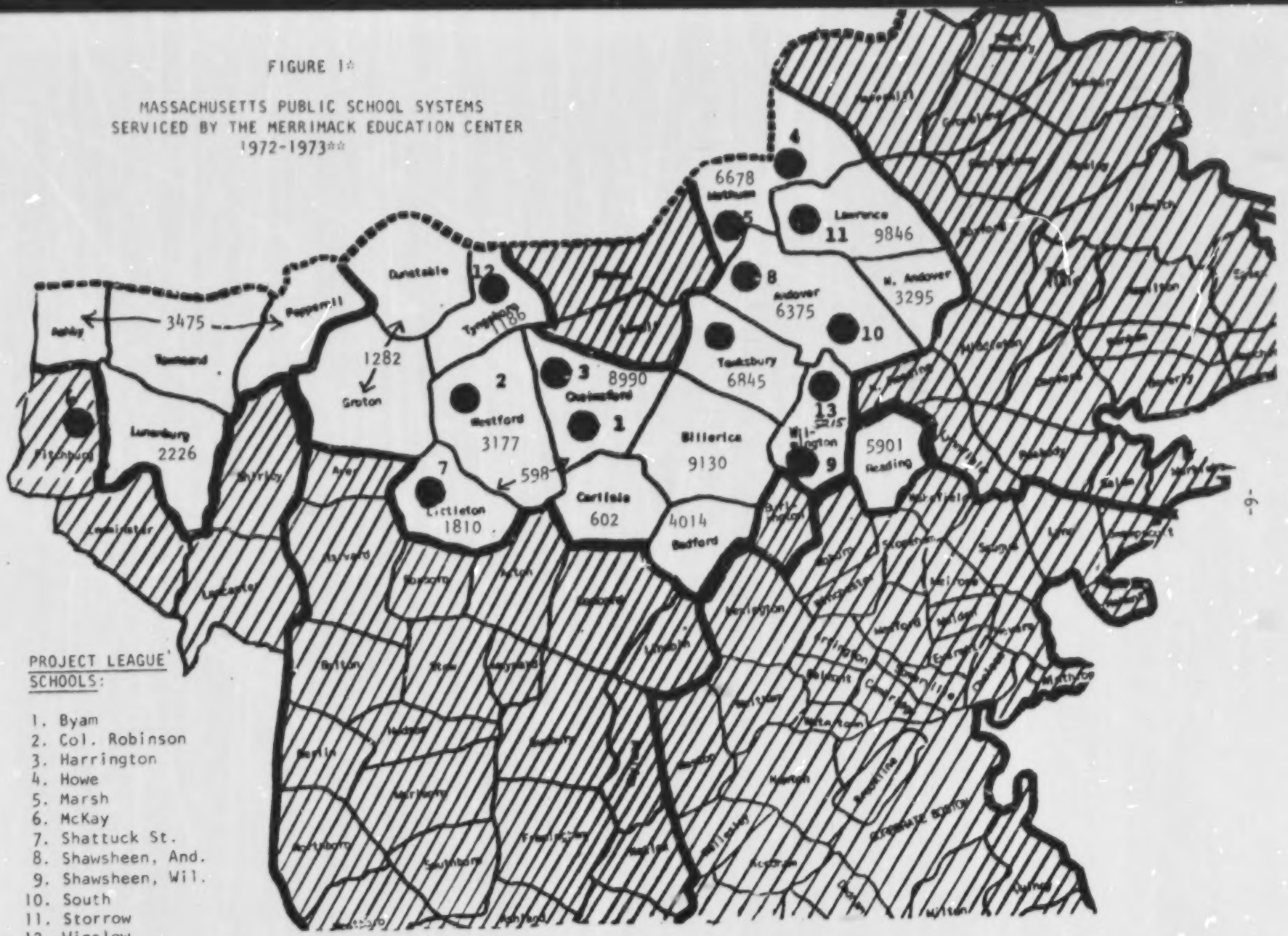
B. THE CLIENT SCHOOL DISTRICTS

The 20 contiguous school districts serviced by the Merrimack Education Center are shown in Figure 1, which indicates the number of students in each community. The location of schools participating in the IGE League are indicated by black circles on this map.

The region includes urban, suburban and rural areas. Some communities have a city form of government, while others have the traditional New England town government structure. Still others have an intermediate form of representative government. Lawrence is the primary urban area, while districts in the western part of the region are primarily rural. Residents in the suburban towns include a large number of people who either commute to Boston or who are employed in the electronics industries which dot Route 128 and the newer Interstate Route 495 which encircle Boston. With these new industries springing up, and with open land available, the Merrimack Valley is a fast-growing region even as the population of Massachusetts as a whole is declining.

FIGURE 1*

MASSACHUSETTS PUBLIC SCHOOL SYSTEMS
SERVICED BY THE MERRIMACK EDUCATION CENTER
1972-1973**



PROJECT LEAGUE SCHOOLS:

1. Byam
2. Col. Robinson
3. Harrington
4. Howe
5. Marsh
6. McKay
7. Shattuck St.
8. Shawsheen, And.
9. Shawsheen, Wil.
10. South
11. Storrow
12. Winslow
13. Woburn St.
14. Tewksberry

*This map has been provided by the Merrimack Education Center.
**At the end of the 1972-73 school year, Woburn, with 8789 students, replaced Reading in the association.

The population of the region is 99% white overall, and even Lawrence, with the largest concentration of Blacks and Peurto Ricans, is over 90% white. Lawrence also has the largest French-Canadian population, and in some schools in that city bi-lingual education is a salient issue.

Overall, the region is about 40% Catholic, with the percentage being somewhat higher in Lawrence. Parochial schools are rare outside of Lawrence, and in Lawrence they are closing at the rate of about one each year. The vast majority of students in the region attend the public schools serviced by the Center.

In general the communities in the region are not wealthy, and tax support for the school systems is often regarded as a burden. Although in Massachusetts the local school board is, by law, autonomous in establishing the school budget, some budgets were nevertheless cut substantially in town meetings this year. Difficulties have arisen in five out of the 20 communities.

Values of the citizens may be regarded as following in the New England tradition; localism is very strong, and there is some hesitancy in sharing. These values, which have been reflected in the school systems, are beginning to change, however.

The Merrimack Education Center services 85,000 students and 6,000 professional staff members in the 20 school districts. There are 150 elementary buildings in the district, 30 junior or middle school buildings, and 20 high schools, 16 of which are comprehensive and 4 which are vocational/technical schools.

Administratively, each community employs a superintendent who supervises all schools in that community. Each building is headed by a principal, and in some communities which have access to sufficient funds a curriculum director is employed to supervise the K-12 curriculum. This pattern is now undergoing

a change, however, largely as a result of Center influence. The schools are recognizing that on a cost and effectiveness basis the Center can provide a curriculum system which is more responsive than the K-12 curriculum by subject offered by any one individual. In addition, those schools which are members of the IGE League have moved to an organizational model in which the building unit is the structure of change.

The town of Andover has taken the lead in transferring curriculum responsibility back into the classroom, and other districts are following suit. Andover, although not nationally known to the same extent as some other Massachusetts towns (Brookline and Lexington in particular), has still received some recognition for one innovative building which was featured in a national magazine.

In general, however, the districts are called upon to respond to conservative values, which are being voiced nationally as well as locally. In particular, there is an increasing value on "accountability," which is expressed as a demand that, above all, students should be educated to read, write and count and should be able to demonstrate an improvement in these basic areas. The Merrimack Education Center has conducted only one needs assessment survey with parents; this survey, conducted in one school building, showed that the most important need from the viewpoint of parents is the teaching of basic skills.

Needs as viewed by teachers, administrators and school board members are assessed more extensively through the annual survey. This year (1972-73) teachers rated "slow learner," "instructional innovation," and "individualized instruction" as being of the highest priority. Top rated by administrators were "successful practices of administrators," "program evaluation techniques," "curriculum design and enrichment" and "individualized instruction." School board members rated "program evaluation techniques" as being of prime importance.

Superintendents have tended to view this survey as being largely reflective of teacher needs rather than management needs and the Center has responded to this felt gap by holding an annual conference for all 20 superintendents in which the issue of needs is always covered. This year the superintendents expressed a desire for Center services in the areas of special education, management, peer dissemination and evaluation of program content.

Needs are further explored in meetings of the In-service Commission; in particular, these representatives of the region are asked if they have proposals to submit for the in-service program.

School board meetings are also held on a regional basis once or twice a year. In general, however, regional meetings, which were the usual practice when the Center first began its operations, have since been largely discontinued. Whereas at the outset the Center attempted to bring all clients together as a total system and to identify common needs, it now tackles the problems and needs of districts individually or in clusters. The Center has felt that it can be more responsive by delivering services without waiting to identify region-wide common needs.

In line with the cluster approach, the Center encourages interchanges among districts which have common needs or which are implementing similar programs. Interchanges are particularly significant among the IGE schools whose elected representatives to a "HUB" Committee meet together on a regular basis. The IGE schools have also implemented a plan, initiated by the principals, whereby there is an actual exchange of personnel (the unit leaders) among the participating schools.

Another significant type of interchange, which is open to all districts in the region, has resulted from a program of "Successful Practices" which the Center has originated. Personnel in the region's schools who have been identified as employing successful practices - unique in style or content - are employed to teach workshops or in-service courses.

II. HISTORY OF THE CENTER

The Merrimack Education Center came into being as a result of a decision of about 35 school superintendents in the Merrimack Valley who had been meeting together informally on a regular basis for a period of some years. In 1967 these superintendents felt a mechanism was needed in the region to assist school districts in implementing change. A delegation of superintendents was therefore selected to prepare a proposal to operationalize this decision.

The proposal, which was prepared and submitted in 1967, stated that the goals of the proposed Center were to study the areas of early childhood education, guidance and career education, and special education. The proposal was swiftly funded with Title III (ESEA) funds of $80,000 per year for a three year period.

In the fall of 1968 the Center, then called the "Merrimack Valley Regional Planning Center," began its operations. It was housed in a building of the Chelmsford Public Schools, with which it was, and still is, legally affiliated. Twenty communities took advantage of the opportunity to join the association, and superintendents from twelve of these communities were elected to the Board of Directors of the Center.

Richard J. Lavin, who had been superintendent of the nearby Wayland School District, was chosen to be the Director of the Center. His background was thus both geographically and professionally homophilous with those who selected him.

Lavin staffed the Center with two professional educators whose backgrounds lay in the areas which the Center had been commissioned to study. One educator, a federal projects coordinator from the Chelmsford school system, had expertise in early childhood education. The other, who was a superintendent of a district outside the Merrimack Valley, was nevertheless known in the region; his specialties lay in the areas of special education and guidance.

Since a Center of the type being assembled in the Merrimack Valley was a rarity in 1968 not only in Massachusetts but in the nation as a whole, it could reasonably be viewed by professionals with an eye to their future careers and advancement opportunities as a marginal and high-risk operation. Thus it was something of a triumph to attract three professionals who not only had skills in educational research and management, but who were equally well equipped to establish good working relationships with school systems in the region.

Much of the first year was, in fact, spent on establishing the identity of the Center and building relationships with client school systems. Title III funding was viewed as a temporary situation, and Lavin felt that the survival of the Center depended upon its capacity to respond to the needs of the member school districts.

Many conferences were arranged by the Center during this period for the purpose of mutual exploration between the Center and the client school systems. Rather than bringing together all 20 districts, three sub-regions (east, central and west) were formed, and sub-regional conferences were held for superintendents and school board members. These meetings, which included no outsiders, were well attended, with an average of about 50 participants.

The sub-regions had different characteristics and needs, and the Center wrestled with the problem of being responsive to all three groups at once. However, one common thread did emerge from the meetings; elementary schools throughout the region were experimenting with individualized instruction, and the Center saw in this an opportunity to provide help in an area which had broad local appeal.

A thorough search was made of programs on individualization available throughout the country, and from the materials gathered an in-service course sequence was compiled. The Center hired instructors from nearby colleges to teach the course and arranged for graduate credit to be conferred on participants by Fitchburg State College.

In the summer of 1969 each school in the association was invited to send a team consisting of the principal and four teachers to a three-week in-service course on individualized instruction. The course, which was held in a Chelmsford school building, attracted 80 participants, who each paid about $150 to attend.

The course was judged a success by the participants, and the Center was satisfied on two points: first, it found that the association districts were responsive to <u>in-service</u> education, and, second, it learned that it could provide them with important information on <u>individualization</u>. The Center was thus encouraged that it could in fact support local needs on a basis independent of outside funding.

As local needs emerged, there was a realization that the initial objectives specified in the founding proposal were primarily of national concern and did not focus on local needs in particular. While ultimately the Center wished to be responsive to local needs and to seek local support, it did not lose sight of its obligation to fulfill the objectives set forth in the Title III

proposal. To this end, a manual on early childhood education was prepared towards the end of the first year, and an inventory was taken on special education. A computer guidance system was installed in a high school; this system emphasized college opportunities but provided vocational guidance as well.

As it moved into its second year of operation, the Center, now called the "Merrimack Education Center," was faced with the task of re-establishing itself with a number of communities. Four of the original 20 superintendencies had changed hands; although this rate of turnover has continued to the present, it was of particular concern in the early years of the fledgling organization.

In addition, a policy approved during the first year resulted in a membership change at the start of the second year. It had been decided that members of the association would pay an assessment to the Center of 25¢ per student. When this decision was implemented in 1969, two communities felt the assessment to be too much of a burden and withdrew from the association. However, two new districts made the decision to join, and thus the membership was held constant at 20.

During the second year the successful enterprises of the first year were continued; in-service education and individualization remained the dominant themes. School board conferences were also continued, but now all districts in the region met together as the Center strove to find areas of need cutting across the region as a whole. School board policies and regulations emerged as an area of common interest and one large conference arranged on this topic met with major success.

At this conference ERIC documents* in the area of school board policies were on display. This marked the beginning of a campaign to make the ERIC resources visible to client school personnel. The ERIC library had been installed at the Center by the Massachusetts Department of Education earlier in 1969. The Center staff initially had little familiarity with the system, and knowledge of the system was even more limited among school personnel. Center staff made a concerted effort to gain knowledge of the library, and once they had established its value they felt it could represent a potentially significant resource for their clients.

The primary problem in disseminating these documents was the fact that they were available primarily only on microfiche. Hence, a special viewer was necessary for utilization, and superintendents were reluctant to invest in microfiche viewers without knowing whether or not the fiche documents were of relevance and quality. The Center hit upon the solution of selling yearly subscriptions which included a microfiche viewer and credit for ordering up to 200 microfiche documents. A school system could thus enter this expenditure as one line item in its library budget; they would not have to make a capital outlay and would not have to struggle with financial paperwork as each document was ordered. It was still difficult to sell the system, however, and usage of the ERIC library remained minimal throughout the 1969-70 year.

As the second year drew to a close the future of the Center appeared somewhat shaky. The organization was holding its own, but with Title III funds due to run out in one more year the venture continued to appear as a high risk operation. It was understandable, therefore, that the two full-time staff people under Lavin decided to leave the organization.

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*Documents contained in a decentralized national library maintained by the U.S. Office of Education under the title "Educational Resource Information Center."

Lavin was again fortunate in being able to fill the vacancies on the Center staff with two individuals of high calibre. Leslie Bernal had been an Assistant Superintendent in Methuen, one of the member districts, and thus he was familiar with the region and could ably build relationships with high level administrators. Jean Sanders, who had been teaching at Boston University and Lowell State College in the area of special education, took over the coordination of this program within the Center.

The program of the Center began to take firm hold in the fall of 1970, the third year operation. Since individualization continued to be of great interest in the region, Lavin accepted an invitation to join in a workshop on individually guded education (IGE) at the University of Wisconsin. The conference was sponsored jointly by the Wisconsin Research and Development Center for Cognitive Learning and the Institute for Development of Educational Activities (I/D/E/A), a division of the Kettering Foundation. The Wisconsin R&D Center had done extensive research on individualization in the multi unit school, and I/D/E/A was assisting in the packaging and dissemination of the resulting program. The program called for school reorganization at the building level as the vehicle for introducing individualization. This impressed Lavin as an ideal approach for his region, where schools experimenting with individualization had no specialized system for implementing their ideas.

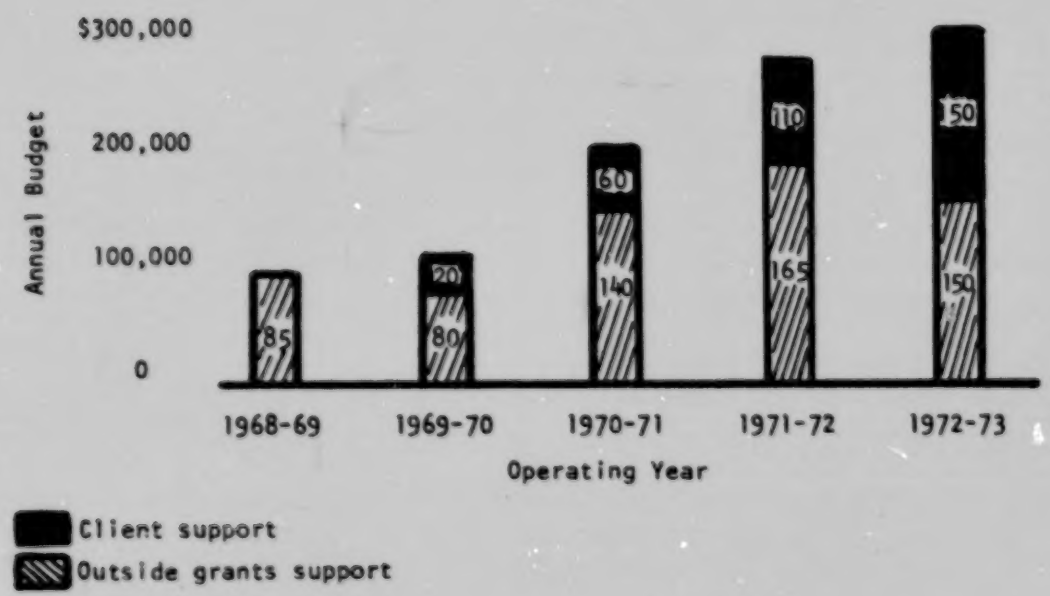
The Merrimack Education Center was designated by I/D/E/A as the regional coordinator for the IGE model. Overview conferences were run by Center staff for superintendents and principals in the region, and 13 schools elected to join in an IGE "League." These schools paid the Center for providing training in implementation and facilitation, and the program was further supported by an additional Title III grant.

Although thirteen of the region's schools were thus receiving substantial benefit from their membership in the association, the Center still had the needs of the other schools to consider. There was a clear necessity to prioritize needs and target information for all 20 districts and perhaps even to each school building or individual educator within each district. Thus a new project was created under the label "LINKER" (Local Information Network of Knowledge for Educational Renewal). The project was proposed to and funded by the National Center for Educational Communication (NCEC) as a one year experiment. The purpose of this project was broadly to provide linkage between research and practice; several part-time "extension agents" were employed to work directly with school personnel, informing them of the information and services available at the Center and assisting them in utilizing these resources. In this fourth year three part-time field agents and one part-time intern were employed in support of the LINKER project. It was in response to this approach that the use of the ERIC files began a steady climb.

As part of the LINKER project the first formal needs assessment survey was undertaken in the fall of 1970. The interests and needs of all 5,000 educators in the region were polled, and with the results of this survey in hand the Center was able to tailor its products and services to meet the needs expressed. The in-service (or "staff development") program was strengthened, with each course being held in a school building proximate to personnel who had expressed interest in that particular course. By the fifth year this program had grown to such an extent that it represented nearly one fourth of the total annual Center budget. Frank Pilecki, who was employed as a consultant to the Center beginning in 1969-70, joined the staff on a full time basis in 1972 as Director of the Staff Development program.

By the end of the third year the Center was fully launched and programs begun and strengthened in that year have continued to grow. The newly funded federal programs gave security to the Center while voluntary payments from the region's schools were increasing. Local income came not only from the 25¢ per pupil assessment but also from payments by IGE schools for League membership services and payments for in-service courses and subscriptions to the information service. Table 1 shows that as the total budget grew from $85,000 in the first year to $300,000 in the fifth year, the percentage of income from local school districts increased from zero to 50%. Lavin has encouraged this trend towards what he calls the "exchange economy," in which the consumer assumes direct financial responsibility for products and services received from the resource agency.

TABLE 1: HISTORY OF THE CENTER'S OPERATING BUDGET



From the second year until the fifth, membership in the association remained stable. At the end of the present year, however, one town dropped out and was immediately replaced by another. The withdrawal was for both political and financial reasons. Shortage of funds appeared as an acute problem as the district moved toward implementation of a Kindergarten program, and the superintendent, despite argument from various staff members, decided that association with the Center was an unnecessary budgetary expense. This community will retain its subscription to the information service, however, and thus all ties with the Center have not been severed.

III. CURRENT OPERATIONS OF THE CENTER

A. FACILITIES

The Merrimack Education Center, being located in the town of Chelmsford, is centrally situated in the region which it serves. It is quartered in a house in an attractive residential neighborhood near the center of town. The house has been altered to provide a large conference room on the gound floor, along with secretarial space and the Director's office. The second floor provides space for offices of the other staff members and storage areas for microfiche and hard copy files.

The Center maintains on its premises machines for duplicating microfiche documents and for blowing up microfiche documents into hard copy. A supply of microfiche viewers are also kept on hand for internal use and for ready delivery to clients. The Center is thus equipped to respond immediately to client information requests even though it does not have the capability of microforming documents. This function is provided by the Mitre Corporation, whose facilities are also used for computer searches of the ERIC file.

B. PERSONNEL

The Board of Directors of the Center is elected from among the 20 superintendents of association districts, with the twelve positions rotating from time to time through all communities. A new chairman is elected by the Board each year. The Board meets every other month to assist the Center in establishing policy and determining priorities for program development and implementation. The Board receives copies in draft form of all proposals prepared by the Center, but has not in the past offered substantive changes.

In two instances, however, the Board has stood fast against organizational changes suggested by Center staff. In the first instance the Board turned down a proposal that the Center be incorporated. The rationale for this proposal was that Center stability and continuity could best be assured by being independent of the Chelmsford School System in the event of a change in the superintendency of that district. In the second instance the Board rejected a proposal that Board membership be increased to include all 20 superintendents of the association. The Board felt that this would be too cumbersome, and a compromise has been reached of having one or two meetings a year which include all superintendents.

Richard Lavin has remained the Executive Director since the inception of the Center. In addition to being responsible for management of the Center, he maintains contacts with outside resources, makes contributions to all the major program areas and is in charge of the program which seeks to develop leadership skills in school management personnel. A small portion of Lavin's time is spent in teaching duties at Boston University in the area of educational economics. This association has enabled Lavin to recruit graduate students to fill part-time positions at the Center.

Leslie Bernal, as Associate Director of the Center, is involved in Center management and is also responsible for coordinating the IGE League. League responsibilities also include expansion of IGE statewide. Prior to

his position as Associate Director, Dr. Bernal directed early efforts of the Center in needs assessment and staff development. Dr. Bernal will be testing some of the new management concepts in the MEC communities.

Jean Sanders has been engaged in a wide variety of activities during her three years at the Center. In 1970-71 her primary involvement was with special education and staff development, and in 1971-72 she also assisted in the IGE program. In the current year (1972-73) her position as Director of Information Services places her not only in a key role in the LINKER project but also in a position of support to all other Center programs.

As the Director of the Staff Development program, Frank Pilecki is in change of all in-service training, including the design of courses and the preparation of course catalogues. He will assume additional responsibilities in the fall of 1973 when he will be in charge of a new League of IGE middle schools.

These four individuals form the core professional staff of the Center. Although each is officially in charge of one major program area, all are directly concerned with all operations of the Center. An effort is made to integrate the four program areas of (1) management, (2) IGE, (3) information services and (4) staff development. Therefore, while each staff member spends about 80% of his or her time on a major area of responsibility, the remaining 20% may be spent working on other projects or the design of new Center activities. To enable the staff to be versatile, an attempt has been made to familiarize each with the skills necessary for multiple task responsibilities; all four have been trained as IGE facilitators, and all have Educational Information Consultant (EIC) skills. (EIC training is discussed below.)

One other full-time person and two half-time persons are directly employed by the Center. Kathy Adams joined the staff in the fall of 1972 and in the spring of 1973 she assumed a full time role as Information Research Assistant.

Her primary responsibility is to process requests for information as they are received from clients, and she also has been trained in EIC skills. In this position she is under the supervision of Jean Sanders.

At the present time Phil Jutras, a graduate student at Boston University, is the only field-based linking agent. He spends three days a week in contact with the Educational Information Consultants and "Local Information Representatives" in the schools. (The roles played by these two types of agents are described below.)

A part-time technician is also employed, who is in charge of duplication of microfiche and maintenance of microfiche files.

In line with the Center's intention of keeping the staff to a minimum, various functions are delegated to qualified individuals, inside or outside the school districts, either on a continuing or on an ad hoc basis. Course instructors are hired on an ad hoc basis from the colleges and universities in the area, and the Center collaborates with Fitchburg State College on a continuing basis in all the major program areas.

The Center also acts in a broker role in providing outside consultants for client schools upon request. In some cases the consultant's fee is paid directly through the Center, but in all cases the Center feels accountable and follows up by eliciting post-consultation feedback both from the consultant and from the school district.

The In-service Commission, composed of school district representatives, assists in the prioritization of in-service needs. Dr. Farley, an Assistant Superintedent of one of the association districts, is hired by the Center to assist Dr. Pilecki in the staff development program. He is a member of the In-service Commission and oversees the in-service program in action. He works in evaluation, registration, and administration of this in-service program

and also contributes to course design. Mr. William Flaherty, who has recently been appointed Superintendent in Billerica Public Schools, is also a member of the In-service Commission and works on the Needs Assessment program.

Two other groups of individuals from within the school districts play an important role in facilitating Center activities. About eight individuals in the region have received training as "Educational Information Consultants" (EIC) for which they have received graduate credit from Fitchburg State College. This training program, modeled on a concept developed by the Far West Laboratory for Educational Research and Development, has been modified by the Center to an independent study mode. The EIC's play a role in linking the school districts with the Center, but it is the Center's judgment that these people generally lack the power within their systems which is necessary for optimal role performance.

In each school district a "Local Information Representative" has been selected to serve as a direct channel between the district and the Center. These have been identified by the In-service Commission as playing a key role within the school system and maintaining strong though informal links with the community. Hence, they are also referred to by Center staff as "gatekeepers." In some cases the gatekeepers may be superintendents, principals or teachers, and in other cases they are librarians or other ancillary personnel. Each has been trained by a field agent in the use of information systems in general and ERIC in particular, and some have also received EIC training. They thus are supposed to have the capability of translating teacher requests for information into requests to the Center for specific documents or for computer searches on specific descriptors.

The Center is of the opinion that each school building should have a "gatekeeper," but this model has been operationalized only in the IGE schools. The HUB Committee, composed of an elected representative from each IGE school in the League, serves as a policy making and gatekeeping body. In this model not only are the representatives to the HUB Committee elected, but they are operational personnel, either principals, teachers or unit leaders. They thus have both the centrality and the power to serve as effective linkers.

C. CURRENT PROGRAMS

Table 2 presents a sumary of the four major program areas now in operation at the Merrimack Education Center. In the second column the staff members principally associated with each program are listed, but it should be noted that all staff members contribute to each program.

It may be somewhat artificial to separate "services" and "products" as has been done on this chart, since in some cases the purpose of a service may be primarily to provide a product (as in the case of information subscriptions). In general, however, "services" represent activities or procedures, while "products" refer to concrete materials.

The fact that a number of services and products appear on the chart several times under different project headings suggests the degree of interrelatedness among projects. In particular, Needs Assessment is shown as a service provided in conjunction with all four program areas. This important activity is used in all cases to prioritize needs and make decisions on what services and projects will best fill client needs. In-service education, while being listed as a separate program (Staff Development), is also listed as a service under the IGE and Management programs. The ERIC library is used as a resource in all program areas.

As each program is discussed in turn below, the overlapping nature of the projects should be kept in mind.

1. The LINKER Program

The "Local Information Network of Knowledge for Educational Renewal" (LINKER) program was funded by the National Center for Educational Communication of the U.S. Office of Education in 1970 for the purpose of providing effective linkage between the 20 client school districts and resources made available through the Center. As the program has developed, an increasing portion of its costs have been absorbed by clients in the form of direct payments to the Center for products and services provided.

The basic intent of the program is to furnish information which will satisfy client needs. In its role of broker, the Center plays an active role not only in providing information but also in helping clients to determine their needs and to utilize the solution information provided. The linkage system may be analyzed in terms of three elements: the structure provided for interpersonal communication; the process through which needs are identified; and the types of responses provided by the Center.

a. The Interpersonal Linkage Structure

The field-based change agents employed by the Center played a key role in bringing the services of the Center to the attention of personnel in the schools. Rather than employing an army of agents to service the 200 school buildings in the region, the Center elected to train individuals within each school district to carry out further linking activities.

Specialized "Educational Information Consultant" training has been provided for 8 school-based personnel scattered throughout the region, and the Center is in the process of identifying additional candidates for this training. A less extensive training, primarily in the use of information

TABLE 2: MAJOR MERRIMACK EDUCATION CENTER PROJECTS

Program	MEC Staff	MEC Services	Products: Produced or Made Available by MEC	Clients Serving As Facilitators	Outside Resource Services	Clients Served	Funding
LINKER -Information Services	Sanders -Project Director Adams -Information Research Assistant Jutras -Field Agent Microfiche Technician	Needs Assessment Field Agent Visits Inquiry Answering & Ready Reference Curriculum Exchange Bank Toy Lending Library Microforming & Viewers Hard Copy Reproduction Computer Searches Educational Information Shop	Microfiche -Curriculum Exchange -ERIC & Other Information Systems Hard Copy -Bibliographies -Targeted Information Profiles -Specially Prepared Indexes Micropaks (Selective Abstracts and Microfiche) Current Alerting System -(Bulletins & Newsletters) Awareness Information Information Packages	Educational Information Consultants (6-8) "Gatekeepers" (20) -Local Information Representatives	Fitchburg State College -Career Education Contract NASCD -Collaboration on Curriculum Exchange Mitre Corporation -QUERY Computer Search Boston College -Computer Processing of Needs Assessment	20 MEC Communities -Subscriptions -All Products & Services Salem State College A.D. Little Laboure College School Systems Beyond MEC Region -Subscriptions -Curriculum Exchange -Micropaks	$50,000 - Federal (NCEC) $18,000 - Local payment for products and services
IGE -Individualized System	Barnal -Project Director Pilecki -Middle School Coordinator	Organizational Structure of IGE is implemented to bring change to a LEAGUE of 14 schools Instructional Materials are identified (such as those for individualization from R&D Labs) In-Service Education Needs Assessment	Instructional Materials IGE Newsletter Bibliographies & Indexes	HUB Committee Representatives (Principals, teachers, unit leaders from IGE schools)	Fitchburg State College -IGE Campus School	14 Schools (from 10 Communities) Central Mass. League to disseminate beyond initial 14 schools	$100,000 - Federal (Title III) $30,000 - Local
Staff Development -Workshops and In-Service Courses	Pilecki -Project Director	Courses Offered to Teachers and administrators for graduate credit Workshops Customized -to individual community design Field Agent Visits Needs Assessment	ERIC Bibliographies for each course Loaned Viewers for Students Successful Practices	Dr. Farley (Asst. Sup Supt. in region) on MEC Payroll In-service Commission Dr. Flaherty (Member of In-service Commission) -Work on Needs Assessment Successful Practitioners	Fitchburg State College -Graduate Credit to Participants Course instructors from local colleges and universities	Any teachers and administrators from 20 MEC communities	$70,000 - Local
Management -Leadership Skills for Management Personnel	Levin -Project Director	Conferences -for School Boards -for Superintendents Monthly In-Service -for Principals Management Assessment Program -Peer process (for Principals and Superintendents) Needs Assessment	Management Materials -(From Far West Laboratory) -Being tested by MEC	Superintendents' Planning Committee		20 MEC Communities -Superintendents -School Boards -Principals	$7,000 - Gathering

systems, was provided for one individual in each of the 20 districts; these are referred to as "gatekeepers" or "Local Information Representatives." Thus the primary contact of the field agent is with the 20 gatekeepers and eight EIC's, who in turn provide linkage with teachers and administrators within their own districts.

Once the basic linkage relationships were established, the number of field-based agents was decreased from three to one. At the same time, requests for information have increased, and thus one full time information assistant has been added to the in-house Center staff. Requests for information are generally sent directly to the Center for processing, while the role of the field agent is to deliver further awareness information on a regular basis, and to assist, when requested, in the implementation of delivered information. The field agent thus contacts every gatekeeper and EIC each month, whether his assistance has been requested or not.

b. The Process of Need Identification

The annual Needs Assessment program furnishes basic information on needs for all Center programs. A questionnaire, distributed to every teacher, administrator and school board member throughout the region, elicits information of two types. First, it asks respondents to rate the extent of their familiarity with over 60 educational topics and the extent of their interest in becoming more familiar with them. Second, it asks the extent of their familiarity with 11 products and services offered by MEC and the extent to which they need additional assistance in obtaining these.

The results of these surveys are used in several ways. First, in response to a finding that awareness of Center services and products was low, a newsletter has been instituted which is distributed to all educators

in the region. Awareness information is given on MEC products and services, and the availability of the gatekeepers and EIC's to assist with informational needs is publicized. Second, in-service courses are designed in response to educational topics which were highly rated by a sizeable number of respondents; this activity is carried out under the direction of the Staff Development staff. Finally, information packages are assembled, also on the basis of highly-rated educational topics; some of these packages are discussed below in item "c."

The subscription service provides another channel through which school personnel at all levels may request information on particular topics. Each of the 20 districts has at least one subscription, which includes a microfiche viewer, ERIC document indices, monthly issues of the ERIC journal of abstracts entitled "Research in Education" (RIE), and 200 microfiche documents delivered on request. A charge of $275.00 is made for new subscriptions, while the cost of renewals is $150.00.* After three years of subscribing, the viewer becomes the property of the school district. Requests for documents are generally channelled through the district Information Representative, and the number of requests forwarded to the Center each month may represent some measure of the relative effectiveness of the various representatives. The number of requests from the various districts ranged between zero and 206 in the first three months of 1973.

c. Center Responses

Every inquiry from a client which is received by the Center is followed up immediately. A computer search of the ERIC file is made on every informa-

*The subscription service is also available to other schools and organizations outside the association (see Table 2, LINKER "Clients Served"), but for a cost of $485.00.

tion request, and other information files maintained by the Center are searched on a manual basis where appropriate. Delivery of documents, either in hard copy or in microfiche, is made within 24 hours.

As mentioned earlier, the Center acts as a broker in locating consultants for clients when assistance requested falls outside the Center's delineated services.

When an area of high need is identified via the needs assessment survey, a special package of documents on microfiche is assembled on the topic and offered to clients at cost. Such packages, generally containing about 30 documents, are accompanied by a bibliography and a set of abstracts in hard copy for $32.50. These "Micropaks" may also include a microfiche viewer* for a total cost of $149.50. Seven Micropaks are currently available, in the areas of learning styles, learning disabilities, special education, individualized instruction, the multi-unit school, behavioral objectives, and the Nebraska English curriculum; more Micropaks are under development.

The Center also engages in linkage activities which it believes will be of service to its clients, whether or not a need has been expressed. Some of these activities involve the development or testing of new products. In process at the present time is a refinement of a "Toy Lending Library," originally developed at the Far West Laboratory and now being marketed commercially by General Learning Corporation. Training programs and manuals are being prepared to accompany this library, and parents are informed of it through teachers.

*Viewers may also be purchased separately through the Center, at cost, for $119.50.

An ambitious program recently undertaken, in collaboration with the Massachusetts Association for Supervision and Curriculum Development (MASCD), involves the establishment of a Curriculum Exchange Bank of locally developed materials. Documents submitted by school districts throughout the state are microformed and made available to other districts at cost ($1.00 per document). The advantage in such a local bank is seen as twofold: first, the materials are likely to be of local interest, and second, the developers of the curricula (identified on the documents) can be readily contacted. The documents submitted generally represent considerable staff and financial investment, and their quality is assured by district level approval. This project, which is currently moving from pilot status to full implementation, seems to be meeting with an enthusiastic reception.

Finally, the Center distributes a listing, updated quarterly, of various books, pamphlets and information packages available for purchase through the Center. This "Educational Information Shop" lists materials which the Center judges to be of high interest or relevance in the region.

2. The IGE (Individually Guided Education) Project League

Agencies in 14 states have to date been designated by the Wisconsin R&D Center as official state dissemination agencies for the IGE concept; in Massachusetts this responsibility has been entrusted to MEC. All the professional staff members of the Center have been trained as IGE facilitators and are thus qualified to handle all training and implementation aspects of the program. Materials pruchased from Wisconsin R&D and from I/D/E/A are fused by MEC to achieve the most beneficial program for League schools. The Wisconsin Center monitors the IGE League through a field survey coordinated by MEC but in general it remains fairly remote from all areas of the project, from training to evaluation. The Project League is supported by the

Massachusetts State Department Bureau of Curriculum and Innovation with Title III funds; while the entire funding of the Center was initially supported by Title III, the IGE League is now the only project supported by this source. The project is further supported by payments of $2,500 per year by each IGE school, which covers training programs and additional services by Center project staff.

IGE is described as an organizational decision making structure for individualizing instruction. It is achieved through an in-service program which trains school staff for organizing the school in the multi-unit structure and for integrating such concepts as team teaching and the nongraded classroom. Once the organizational structure has been established, a wide range of curriculum components, materials and methods can be incorporated to achieve individualized instruction.

It has been the Center's observation that some of the IGE schools make more frequent use of Center products and services than do other schools in the region; it is suggested that this can be credited to the more open organizational and decision making structure. Calls to the Center for information are more likely to come from teachers and principals in IGE schools than from equivalent personnel in other schools, where requests are generally channeled through the Information Representatives. The IGE schools are further served by the Director of the project, who personally delivers IGE materials directly to the schools.

The "League" concept, initiated by Goodlad in California, has been modified in the IGE model to include the information component, but the major function of the League is to provide mutual support among systems embarking on a course radically different from surrounding schools. The support and exchange among IGE schools is evident both at the local and at the national

level. Locally the exchange of personnel among IGE schools is a prime example. In addition, the IGE principals meet regularly at the Center, as do the elected representatives to the HUB committee. Ideas generated by HUB committees across the country have been assembled into documents, microformed, and made available to all IGE Leagues. In this sense a national network of "creative schools" has been formed.

As the IGE schools build their own internal problem-solving capacity, the need for Center coordination diminishes. The Center has thus encouraged the formation of additional IGE Leagues in Massachusetts and is now in the initial stages of developing a middle school IGE League in the Merrimack region and a League of eight elementary schools in central Massachusetts. The Center hopes to be able to maintain an exchange economy on the IGE projects; once a League is thriving on its own and Center support is no longer needed, the rationale for the payment of an annual fee declines. The Center must therefore balance its own staff resources against the need to establish new Leagues to maintain the economy.

The Center must in fact examine its total resources in terms of its responsibility as the only official IGE disseminator in Massachusetts. If the IGE model is superior to the traditional school organization, perhaps all schools should be encouraged to adopt this model. Since the present IGE League represents less than 10% of schools within the Merrimack region a full change-over to the IGE model within the region, let alone in the state as a whole, would require a drastically modified implementation procedure. Obviously, if the MEC continues to expand its operations throughout the state as an IGE disseminator, the size and character of the Center will be radically altered.

3. The Staff Development Program

The Staff Development program of in-service education for teachers and administrators is designed largely on the basis of needs as determined by the Needs Assessment survey. The In-service Commission, made up of representatives from each of the 20 districts, administers the Needs Assessment program and reviews priorities for in-service courses. As much as is possible courses are customized by school building to answer to specific needs expressed.

The Center describes itself as running a "miniature university," with faculties hired from colleges in the Boston area. Each person enrolled in a course pays $80.00, of which $15.00 is paid to Fitchburg State College for registration and graduate credit; instructors are paid $750 per course from these receipts. The enrollment in each course is generally between 12 and 25, and there are generally about 12 courses offered each semester. Most courses are held in the late afternoon or evening during the school year. A search is made of the ERIC library to prepare a bibilography for each course offered, and a brochure describing the courses is distributed to all teachers and administrators in the region. Over the last two years about 1,000 educators have been enrolled in the Staff Development courses.

The Center acts in a further linkage capacity by disseminating local "Successful Practices" throughout the region. Local practitioners who have been identified as the originators of successful practices may be employed either to conduct a workshop or to teach a formal in-service course on that topic. In some cases two or more successful practice modules are joined together to form one course unit. Of the 11 MEC services and products listed

on the 1972-73 Needs Assessment questionnaire, Successful Practices ranked first in interest among the region's educators.

Data from the Needs Assessment survey is tabulated by building and given to the in-service representative for each district. These representatives are responsible for providing feedback to their own districts. If needs expressed by a district are not being met by courses offered by MEC, the districts are encouraged to institute their own in-service programs. To date district response in this area has been weak. In effect local initiative on such matters without the direct intervention and active support of MEC is minimal.

4. The Management Leadership Program

The area of management and school organization is seen as a long range area of high priority in the region's schools, and is being responded to by the Center in several ways. Conferences for school board members and superintendents are held to consider the topic, and the superintendents' planning committee contributes to the preliminary review and planning of programs undertaken.

At the present time the Center is testing management materials developed by the Far West Laboratory concerning goals, objectives and problem-solving. These are being piloted in in-service courses for administrators at the middle management, or principal, level, but a decision has not yet been made as to whether to continue their use on a permanent basis.

In addition, a study is being conducted, pursuant to a grant from the Kettering Foundation, to achieve a "synthesis of knowledge and practice in educational management and leadership." The outcome of this study will be a management program to be offered to member school systems.

Lavin is also investigating a "collaborative concept in education as it relates to pooling resources and shared service centers." A chief concern is the development of a responsive school organization by providing management with an outlook conducive to the sharing of ideas and to participation in innovative programs. One question to be answered is whether the schools are capable of mirroring the Center in terms of being responsive to local needs. This study will be documented in the form of a report to the Governor of Massachusetts.

The final enterprise now being initiated in the management area is a peer process of management assessment. A thorough literature search on the topic has been completed and the next step will be visitations by superintendent teams to fellow superintendents. An evaluation and assessment will be carried out, with results fed back to provide the visited superintendents with information that will assist in system planning.

D. CENTER FUNDING AND OPERATING BUDGET

In Table 2 sources of funds were indicated for each of the major program areas. Table 3 is presented to show the amount of funds, in rounded figures, received from all sources in the 1972-73 year.

The assessment of 25¢ per pupil is used for general overhead expenses, while other revenues received locally are used to cover the cost of services and products on an exchange basis.

[Insert Table 3 here]

The Center has achieved its projected goal of being financed by local schools and outside sources on a 50-50 basis. However, since at the present time it seems to be increasingly risky to depend on grant sources even to

TABLE 3: 1972-73 REVENUES

Revenue from Association Schools	Amount
25¢ Per Pupil Assessment	$ 18,000
In-Service Courses	50,000
IGE School Assessments	30,000
Consulting Evaluation	20,000
Management Development Contract	7,000
Information Subscriptions, Workshops, Consulting, Orientation Sessions, Micropaks, etc.	25,000
Total Local Revenue	$ 150,000
Revenue from Federal Grants	
Title III - IGE Program	100,000
NCEC - LINKER Project	50,000
Total Federal Revenue	$ 150,000
TOTAL 1972-73 REVENUES	$ 300,000

this extent, the Center has been reconsidering its funding objectives. It is partly for this reason that subscriptions and information packages, once developed, are being offered outside the MEC region.

E. THE RESOURCE INFORMATION BANK

The ERIC library is the major information system maintained by the Center; less extensive files include the ASCD (Association of Supervision and Curriculum Development) curriculum, New York State curriculum, Kettering's successful practices, the ALERT system (a comparative listing prepared by the Far West Laboratory of all nationally available educational programs in

curricula, instructional and management areas), Learning Activities Packages and the local curriculum exchange bank being formed by MEC in collaboration with the Massachusetts Association of Supervision and Curriculum Development (MASCD). The Center has made a search of information banks which exist both nationally and internationally and has assessed their relevance to local needs. A determination was made that the contents of the 1972 ASCD bank were responsive to needs which were largely national rather than local, and it was this assessment which led to the establishment of the local curriculum bank. The Needs Assessment survey showed that local educators were primarily interested in successful practices, curriculum and clearinghouse products, and the Center has attempted to reflect this interest in the information systems it makes available.

All the above information systems are stored separately in microfiche form, but it is only for the ERIC system that computerized searches can be made. Other searches are made on a manual basis by Center staff, all of whom are sufficiently familiar with the contents of the files to conduct effective searches. As the files grow in volume, however, this approach may not continue to be feasible. The Center disseminates catalogues of all information systems to the subscriptor stations (locations of microfiche viewers supplied with annual information service subscriptions), so that requests may be made directly in terms of document identification numbers.

The Center also maintains on its premises a file of documents in hard copy from various sources. A card file is kept for ready identification of documents by title or descriptors. In addition, between 150 and 200 bibliographies on topics of high local interest are available in hard copy.

These listings have been largely compiled at the Center, but some have also been exchanged with RISE, a highly reputed educational information center in Pennsylvania. Professional educational journals subscribed to by staff members form a further information resource.

When a request is received for information on a particular topic (rather than for a specific document), the order in which files are searched may vary according to the topic of information requested. In general, however, an ERIC search is first made, and this is followed by a search of the bibliography file, the ALERT system, the Kettering and ASCD documents, journal articles, and finally any specialized file appropriate to the topic.

In addition to documents, a variety of other resource materials are available at the Center; these include products purchased from the regional laboratories, private companies and government agencies. Laboratory products include the management materials and Toy Lending Library (Far West Lab), Resource Utilization and Problem-Solving (RUPS) skills training package (Northwest Lab), and Individualized Mathematics System (Lab of Carolinas). (Laboratories have selected corporations for national distribution for many of these products.) Other materials in use at the Center include: Mini-kits (NCEC); American Institute for Research in the Behavioral Sciences (AIR) reports, a series of program descriptions of 21 reports dealing with the developmental history of recent educational products*; and Putting Research into Educational Practice (PREP), a series of information packs on nationally important educational topics prepared by the NCEC.

A more detailed description of the contacts which the Center has with these resource systems will be provided in the section which follows.

*Some of these reports are sponsored by the Office of Program Planning and Evaluation, DHEW/OE.

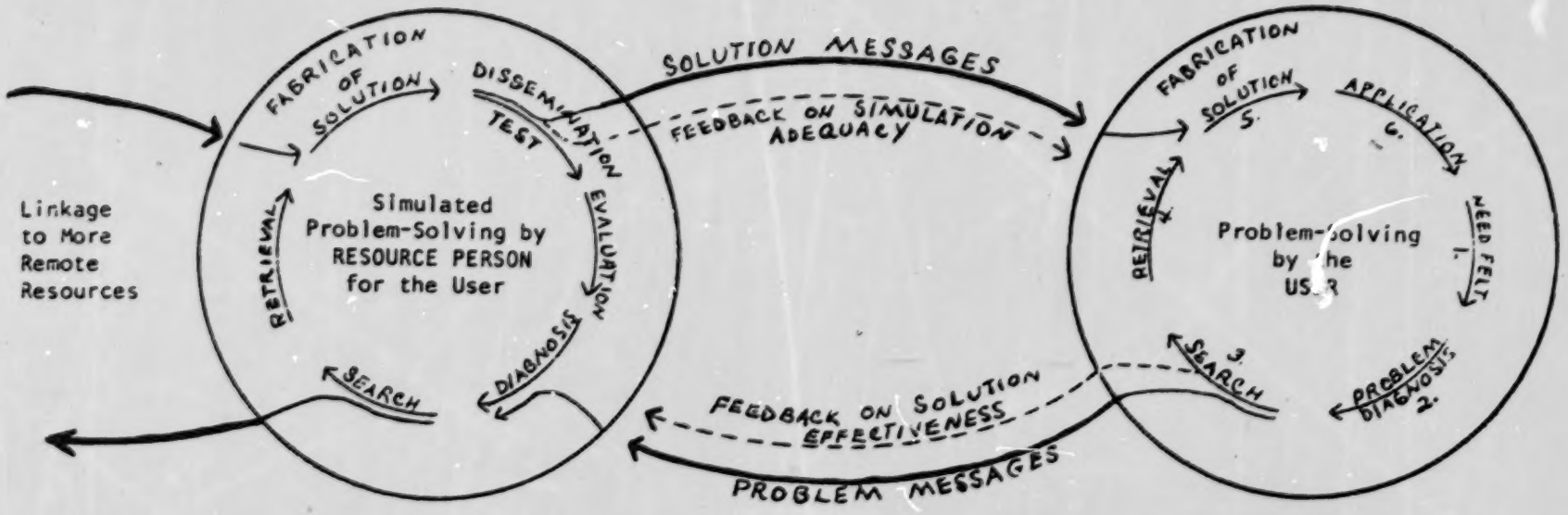
IV. LINKAGE BETWEEN RESOURCES AND CLIENTS

As was stated at the outset, the Merrimack Education Center, in establishing itself as a linking mechanism, has been guided in part by Havelock's concept of "Linkage"; important aspects of this model are illustrated in Figure 2. The concept of linkage starts with a focus on the user as a *problem-solver*, and thus, we must first consider the internal problem-solving cycle within the user. The user experiences an initial "felt need" which leads him to make a "diagnosis" and a "problem statement." He then works through "search" and "retrieval" phases to a "solution," and finally to the "application" of that solution. But, as can be seen in the Figure, the linkage model stresses that the user must be *meaningfully related to outside resources.*

Havelock describes the linkage model as follows:

> To coordinate helping activities with internal user problem-solving activities, the outside resource person must be able to recapitulate or simulate that internal process. Technically speaking, the resource person needs to develop a good "model" of the user system in order to "link" to him effectively. Clinically speaking, we could say that he needs to have empathy or understanding.
>
> At the same time, the user must have an adequate appreciation of how the resource system operates. In other words, he must be able to understand and partially simulate such resource system activities as research, development, and evaluation.
>
> In order to build accurate models of each other, resource and user must provide reciprocal feedback and must provide signals to each other which are mutually reinforcing. This type of collaboration will not only make particular solutions more relevant and more effective, but will also serve to build a lasting relationship of mutual trust,

FIGURE 2: THE LINKAGE PROCESS*



*From Havelock, THE CHANGE AGENT'S GUIDE TO INNOVATION IN EDUCATION, Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

and a perception by the user that the resource person is a truly concerned and competent helper. In the long run, then, initial collaborative relations build effective channels through which innovations can pass efficiently and effectively. Linkage is not seen merely as a two-person process, however. The resource person, in turn, must be linked in a similar manner to more and more remote expert resources.*

There must be an extensive and rational division of labor to accomplish the complex tasks of innovation building, but each separate roleholder must have some idea of how other roles are performed and some idea of what the linkage system as a whole is trying to do. In particular, there is a need for some central agency which has a primary task of "modelling" the total innovation-building and disseminating system, and acting as a facilitator and coordinator, seeing to it that the "system" is truly a system, serving the needs of the user.

Elsewhere we have proposed that "a network of regional educational agencies can serve as truly comprehensive resource centers and resource linking centers with the skills and the staff to be an effective mediating mechanism between R&D on the one hand and operating school districts on the other."**

The linkage position of such an agency is suggested in Figure 3. The ideal regional linkage center has two major tasks: first, to build and maintain adequate linkage to resource systems; and second, to build and maintain adequate linkage to the educational users in its region. Each of these tasks, as carried out by the Merrimack Education Center, will be considered in turn.

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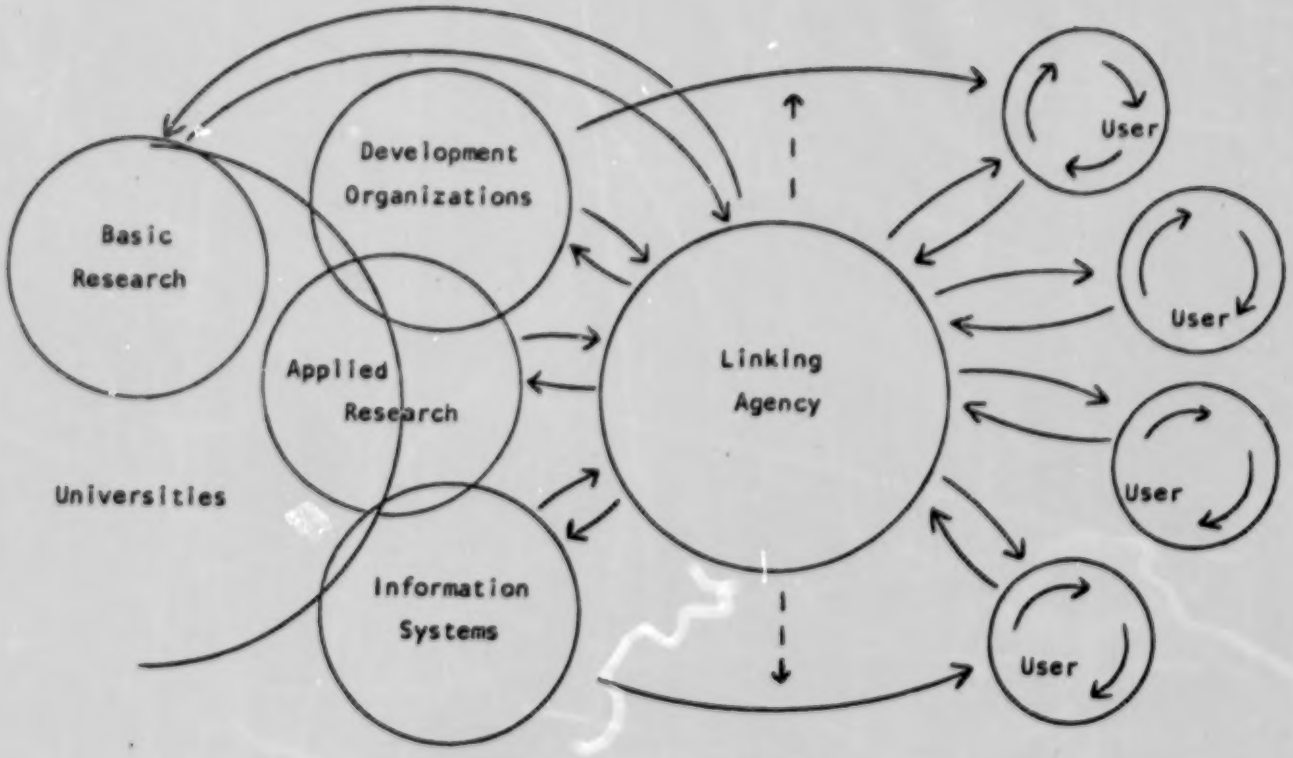
*Havelock, THE CHANGE AGENT'S GUIDE TO INNOVATION IN EDUCATION, Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

**Havelock, "Assembling the Pieces of the Educational Revolution," a paper presented at the President's National Advisory Council Conference on Innovation, Washington, D.C., March, 1970.

FIGURE 7: THE CENTRAL LINKING AGENCY IN THE MACROSYSTEM



A. MEC LINKAGE TO RESOURCES

In other writings, we have described the task of building linkage to resource systems as a three step process. As a first step, the agency should develop a wide span of awareness of potential resource systems; who they are, where they are; which ones seem to be more relevant, less relevant, more accessible and less accessible. As a second step, the agency should begin to make contact with the most relevant and accessible outside resources, initiating two-way interchanges to promote mutual awareness and to learn about their potential resource-giving capacity. Finally, as a third step, the agency should begin to develop joint projects, testing out the actual resource giving capacity of outside agencies.

Table 3 presents in outline form the resources upon which the Merrimack Education Center draws; it shows the nature of both impersonal and interpersonal contacts with each resource system. This list is not necessarily exhuastive, but it is suggestive of the range of resources utilized.

[Insert Table 3 here]

This list is, in our judgment, impressive both in terms of the number and variety of resources to which the Center is linked and in terms of the extent of two-way interchanges into which it enters. In addition there is a continuing search for new resources, limited only by the amount of time available to the staff for this activity. Lavin spends up to 15% of his time searching out new resources and maintaining relationships with old ones. This activity is found to be very time-consuming, and the Center staff lament the fact that there is no established system in the field of education to facilitate the identification of resources. There is no doubt, however, that the Center's awareness of resource systems (Havelock's first step) is high.

TABLE 3: MEC LINKAGE TO RESOURCES

RESOURCE	MATERIALS AND IMPERSONAL CONTACTS	INTERPERSONAL CONTACTS
1. Government Agencies		
MDEE/NIE	PREP Packages, Mini-Kits, Funding	Discussions
Mass. Dept. of Ed.	Title III Funding	Discussions
Mass. Governor's Committee		Consultation
2. Regional Laboratories		
Far West Lab	EIC and Management Materials, ALERT, IIU	
Northwest Lab	RUPS, Peer Management	
Research for Better Schools		IPI Consultant
Carolinas	IMS	Training in IMS
3. R&D Centers		
Univ. of Wisconsin R&D Center	IGE Materials	IGE Training; Conferences
4. Educational Centers		
IGE Centers	Information Exchange	
Pilot State Dissemination Centers	Information Exchange	
Educational Collaborative (EDCO - Boston)		Needs Assessment Collaboration
5. Colleges & Universities		
Fitchburg State College		In-service Collaboration
Boston Univ.		Professors for In-service, Graduate Students
Boston College	Computer Services (Needs Assessment)	Professors for In-service
MIT		Conferences
Harvard Univ.		Early Childhood Study
Lesley College		Collaboration - IDTA
Indiana Univ.		Consultants
Univ. of Mass		Source of Interns
Other State Colleges		Professors for In-service
6. Private Foundations		
I/D/E/A (Kettering)	IGE Materials	
Childrens Television Workshop		Consultant
7. Private Development Organizations		
Ed. Dev. Corp.	Film Materials	Discussions
General Learning Corp.	Toy Lending Library (Far West Lab original developer)	
National Computer Service	Wisconsin R&D Materials	
8. Private Corporations		
Xerox	IMS	Discussions
Arthur D. Little		Consultant
OSTI		Discussions
Raytheon		Discussions
Systems Dev. Corp.	Computer Services (ERIC)	
Mitre	Computer Services (ERIC)	
9. Information Systems		
ERIC	Library (Fiche), Indexes, Training Materials	
Kettering	Successful Practices File (Fiche)	
N.Y. State	Curriculum File (Fiche)	
ASCD	Curriculum File (Fiche)	
MASCD	Local Curriculum Bank (Fiche)	Collaboration
ALERT	Catalogue of Innovative Programs	
EPIE	Magazine, Newsletters	
NCEC	Current Topics, PREP Products Reports	
AIR	Edited Abstracts from ERIC and NTIS	
Edfel	Journals	
Prof. Assoc.	Exchange of Bibliographies	
NISE	ERIC Abstracts Series	
AASA		
10. Publishers		
MIT	"Yellow Pages of Resources"	Discussions
MacMillan	Mini-courses (originally developed at Far West Lab)	

Moving on to the second step, it is clear that both accessibility and relevance have been taken into account in establishing linkages. Readily available materials from regional laboratories have been used extensively, and virtually all information systems available nationally have been tapped. Interpersonal relationships with colleges, universities and private organizations have been formed primarily on the basis of geographical accessibility.

The relevance of resources has been judged on the basis of two criteria; first, the resource should answer to local needs as determined by the Needs Assessment survey and prioritized by the various committees, and second, the resource should be capable of delivery. In many cases the Center has had to build delivery systems for resources ranking high on the first criterion. The ERIC system, for instance, was judged to be highly relevant to local needs, but it could not be delivered until the subscription service had been installed. In other cases materials have undergone adaptation at the Center to meet local needs: examples include the EIC training materials and the Toy Lending Library.

In general, the Center has found commercially produced materials to be of higher capacity than the first level laboratory products, simply because they do not require extensive adaptation. Among information systems, the Kettering and ERIC files are judged to be most useful, needing no modifications and being highly relevant to client needs.

Information judged not relevant to client needs is rejected. The fact that the 1972 ASCD curriculum files were found to be representative of national rather than local needs prompted the Center to discontinue purchase of this system and to initiate the local Curriculum Exchange Bank. Another case of exclusion of particular resource materials can be found in the Center's

judgment that the IPI program developed by RBS was inferior to IGE when used alone and would be redundant if used in conjunction with IGE.

Havelock's second step also includes the initiation of two-way interchanges, and Table 3 points out some of the ways in which such exchanges take place betwen the Center and its resources. It is with the local colleges, universities and private organizations that the greatest interpersonal exchange takes place, but the Table shows that some form of interchange takes place with resource systems in each category. Information is exchanged with other educational centers, discussions are held with governmental agencies, documents are submitted for inclusion in the ERIC library, and ERIC has been informed of the subscription service and Micropaks developed by the Center.

Feedback of client needs and reactions are represented in many of these contacts. Professors are engaged for the express purpose of filling client needs for in-service courses, quarterly reports are submitted to funding agencies, and results of the testing of laboratory products are relayed to the developers. However, when the Center has not been involved in the testing of a product, it has found that the regional laboratories are particularly likely to be unresponsive to feedback.* If a laboratory has released a product to a commercial organization for dissemination, it then tends to disassociate itself from further follow-up. On the other hand, the Center has found that the commercial organizations may be receptive to feedback.

Havelock's third step in the development of linkage with resource systems is the initiation of joint projects. MEC through the years has collaborated with various systems either for specific projects or on a continuing basis.

*This observation should not be interpreted as criticism of the Laboratories. Indeed, if they are to fulfill their development mission they need to retain some distance from the local and continuing operational needs of a Center such as MEC.

Early in its history, the Center collaborated with Harvard University in completing its study of early childhood education and with the Educational Collaborative of Boston in designing the Needs Assessment Instrument. Of more lasting duration has been the Center's association with the Wisconsin R&D Center and I/D/E/A-Kettering in connection with the IGE program. Perhaps the most significant association, however, has been with Fitchburg State College in bringing in-service courses for graduate credit to the local districts. This arrangement has proved so successful that the Center would like to see other communities and other colleges replicate of this model.

The Center is continuing to form close relationships with other resource systems, and at the present time is collaborating with Lesley College in conducting a workshop on IOTA (Instrument for the Observation of Teacher Activities), and with MIT is sponsoring a conference on the role of women in science and technology. Also recently initiated is the Local Curriculum Exchange Bank in collaboration with MASCD.

Although professional journals form part of the Center's information bank, the relationship with MASCD represents the only two-way interchange between the Center and the professional associations. Since teachers and administrators alike are often influenced to a considerable degree by both general purpose and subject area professional associations, it is our suggestion that the Center could capitalize on this entree to individual educators by entering into MASCD-type collaborative relationships with other associations.

B. MEC LINKAGE TO CLIENTS

The other side of a center's activities concern linkage to and service to the school districts in the region. In other writings we propose that the effective linking agency needs to make a thorough accounting of the

number of districts and schools it serves, their needs, their resources, and their current capacity and level of competence in problem-solving, resource retrieval, and planning. MEC concentrated on such an exploration and definition during its first two years of operation, and has since moved on to the process of establishing itself in a linkage role.

[Insert Figure 4 here]

Figure 4 illustrates the ideal process of building linkage with clients as a step-by-step program. The first step is creating awareness, letting clients know you exist and that you are there to help them as a general resource in their problem-solving efforts. Beyond awareness, the agency must begin to be directly involved on a project-by-project basis. As a third step, the agency should enter into a serious dialogue with client systems on what their problems really are. It is only after some success has been achieved in ad hoc problem-solving that the agency can begin to work with clients in a more comprehensive way in planning, working out behavioral objectives and generating a continuous process of monitoring and programmatic upgrading.

These activities are conceived of as representing a progression over time to an ideal state of affairs. On the other hand, some activity at each level must occur continuously and simultaneously in order to (1) build linkage to new clients entering the system; (2) provide information on new products and services; and (3) to take into account varying degrees of response of different client systems and individuals within each client system.

FIGURE 4: BUILDING LINKAGE TO USERS

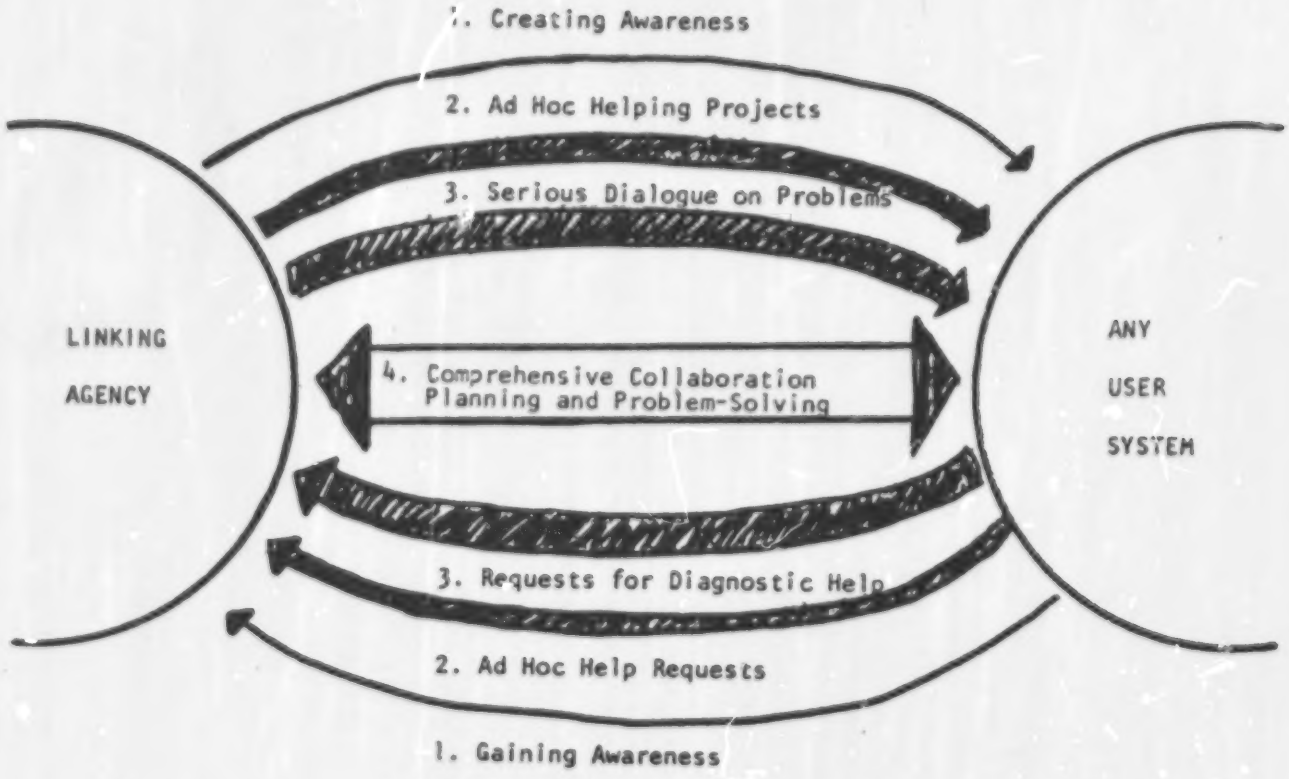

1. Creating Awareness
2. Ad Hoc Helping Projects
3. Serious Dialogue on Problems
LINKING AGENCY
4. Comprehensive Collaboration Planning and Problem-Solving
ANY USER SYSTEM
3. Requests for Diagnostic Help
2. Ad Hoc Help Requests
1. Gaining Awareness

Table 4 presents an outline of the on-going interchanges between MEC and its clients, divided into the four steps described in Figure 4 above. As indicated in the Table, certain activities may involve any teacher or administrator in any school, while additional interchanges may take place with specific groups within the region.

[Insert Table 4 here]

It should be pointed out that no interchanges are indicated between the Center and students or parents. Students are considered by the Center to be "recipients," while teachers and administrators are viewed as the "consumers" of Center products and services. Center contact with and influence on students is thus only indirect. However, there are direct linkages with parents in connection with the Toy Lending Library, in the training of paraprofessionals in in-service courses, and through the Parent Advisory Committee.

Not indicated in the Table are mailings which are made to schools outside the association, principally to members of ASCD. All Center mailings, both inside and outside the association, are sent on distinctive yellow paper so the source may be easily recognizable.

Awareness information is sent routinely, while information directed to specific needs may be sent either routinely or in response to requests. In either case, information is not sent indiscriminately. Materials relevant to needs as expressed on the needs assessment survey are targetted to each district, while information on what the Center perceives as potential future needs may be sent to all districts. The Center screens information in order to prevent overload on client systems; a selected set of documents on a particular topic may be transmitted rather than the total array of information available.

TABLE 4: MEC - CLIENT LINKAGE

Audience	Center to Client			4. Comprehensive Collaborative Problem-Solving	Client to Center	
	1. Creating Awareness	2. Ad Hoc Helping Projects	3. Serious Dialogue on Problems		3. Requests for Diagnostic Help / 2. Ad Hoc Helping Requests	1. Gaining Awareness
1. All Teachers and Administrators	Slide-Tape Presentation In-Service Brochure; LINKER Newsletter	Documents and Information Packages Furnished	Seminars Workshops In-Service Courses		Needs Assessment Questionnaire Document Requests Visits to Center In-Service Enrollment	Needs Assessment In-Service Evaluation
2. Superintendents		PREP, ASA, School Board policy info, Ed Recaps, -regular mailing	Conferences	Management Assessment	Requests for Consultants	Meetings
3. Executive Board				Planning and Policy-Making Sub-Committee Studies		
4. School Boards		Meetings	Conferences		Meetings	
5. Educational Information Consultants (EIC's) and Information Representatives		List of Products and Services Samples ERIC Use Guide New Curricula RIE -Monthly Update	Bibliographies -Delivered selectively on basis of needs assessment	Training on linking and problem-solving Field Agent Visits	Response to field agent visits	
6. In-Service Commission			Needs Assessment Feedback Data		In-service course proposals	
7. IGE Schools -especially Principals and HUB Committees	IGE Newsletter			Organizational Restructuring IGE Agent Visits	Center observes that IGE schools request much more info in general than non-IGE schools	

Because all principal Center staff members have had previous experience in school settings and because they make frequent visits to clients in the field, they are often able to sense problems and determine priorities before needs are expressed by clients. The Center thus predicts needs and offers programs and courses to meet them. Communication from clients is frequently in terms of their response to something offered rather than in the form of a request.

The exchange economy model provides effective feedback on Center offerings; if products and services are purchased, this provides evidence of relevance and effectiveness. The Center is quick to respond to this feedback since its own survival is at issue. Other feedback from clients is provided by program evaluation processes. The total IGE program is evaluated in several ways, and two sets of evaluative questionnaires are returned by participants in each in-service course.

Teachers and administrators in general may gain problem-solving skills through participating in appropriate in-service courses, but, as Table 4 shows, the primary problem-solving dialogue carried on between the Center and its clients occurs in the IGE schools or at the management level of other school systems. This problem-solving process will be discussed in detail in a later section.

C. MEC INTERNAL LINKAGE

In order for an agency to provide an effective link between resources and clients, it must have internal structure and planning procedures which facilitate linkage activities. Within the Center a division of labor exists which is related to program management. Each of the four principal Center staff members is responsible for one major program, including linkage

to resources and clients. Because of the interrelatedness of the program areas, however, the expertise and diverse contacts of each staff member are shared to enrich all programs; through program integration a synergy of responses is generated. Although this approach provides a structure for building the resource base and for providing responses to client needs, the Center strives to keep the programs flexible and adaptive. New areas of concern are not overlooked simply because they do not fit within existing programs; the recent addition of the management program is a case in point.

Frequent interchanges among Center staff are considered imperative for optimal operation, but in light of the staff's frequent visits to resource systems and clients in the field, the Center found that informal contacts were not taking place with the desired frequency. A formal arrangement has thus been instituted which calls for staff meetings every two weeks. In preparation for each meeting, each staff member fills out an activity log which shows activities engaged in during the preceding two weeks and projected activities for the next two weeks.

More recently a long term integrative form has been introduced. On this form all programs are displayed along a time line, with each staff member's responsibilities shown not only for his own program but also for any other program where his resources and ideas are salient.

In making long range plans the Center considers not only needs as expressed by clients but also areas of concern which are emerging nationally. New areas of potential interest are included in descriptors on the needs assessment questionnaire, which serves the purpose not only of arousing local interest but also of creating awareness. Care is taken, however, to assure that services can be delivered in these areas if interest is shown, and thus planning is tied to client response. Proposals for new programs are also shared with clients before implementation.

The Center views itself as taking the initiative in planning, especially for long-term objectives. It is attempting, however, to move toward increasing its collaboration with clients in the planning process, and there is evidence now of more involvement in planning on the part of superintendents. Subcommittees of the Center's Executive Board have formed in recent months to study problems in depth, and the management program is drawing in superintendents of all districts to consider long range objectives and methods of achieving them.

The Center would like to see all association schools become adaptive and responsive, and in this sense to mirror the structure and planning processes of the Center. While the seeds of self-renewal are only now being sewn in the majority of schools in the region, the IGE schools, where planning is an integral part of normal operations, have already moved far in this direction.

V. PROBLEM-SOLVING AS A STRATEGY FOR CHANGE

We have suggested* that there are four primary ways in which a person can act as a change agent; he can be a catalyst, a solution giver, a process helper or a resource linker. These roles, however, are not mutually exclusive, and indeed the Merrimack Education Center plays each of these roles to some degree. The catalyst acts to prod the system to be less complacent and to start working on its serious problems; there can be no doubt that the Center has stirred up the region's schools, but it has gone well beyond this initial step.

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*Havelock, R.G., THE CHANGE AGENT'S GUIDE TO INNOVATION IN EDUCATION, Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

While a catalyst may not necessarily have answers to problems which he uncovers, the solution giver has definite ideas about what solutions he would like to have other adopt. The Center has come forth with IGE as a solution to the need for individualization, but in most cases it prefers to offer a range of information from which clients may choose the solution which most appeals to them.

The Center prefers to regard itself as performing the roles of process helper and resource linker. A process helper provides assistance in showing the client how to recognize and define needs, to diagnose problems and set objectives, to acquire relevant resources, to select or create solutions, to adapt and install solutions and to evaluate solutions to determine if they are satisfying his needs. However, effective problem-solving requires the bringing together of needs and resources; the resource linker may be defined as the person who plays this role and helps clients find and make the best use of resources inside and outside their own systems.

The Center philosophy is in concord with the concept that these two roles are complimentary. Lavin has stated that the staff does not go into a school and work solely at the process level. While they assist people in moving toward a solution to a problem, they do not want to lead people to a place where there is no solution. The intention, then, is to link process to products and services. All Center staff play these roles in different program areas. We have discussed above the way in which the Center acts as a resource linker; it is the purpose of this section to explore its role as problem-solver. Havelock describes the change agent's activities in the overall planning and installation of innovations as being comprised of six problem-solving stages: (1) building a relationship; (2) diagnosing the problem; (3) acquiring relevant resources; (4) choosing the solution; (5) gaining acceptance; and (6) stabilizing the innovation and generating self-renewal.

This process may be undertaken for change projects of any scale, from system-wide reorganization of a school to the introduction of specific materials or procedures in the classroom. There is evidence that the Center carries out some or all of these procedures to some degree in introducing materials and programs. However, it is Lavin's contention that systems are more likely to link to an institution than to a specific service, and the Center's major thrust is therefore at the system level. Accordingly, as we examine the Center's activities in terms of each of Havelock's six stages, we will emphasize the organizational problem-solving aspect.

A. BUILDING A RELATIONSHIP

Table 5 presents in outline form our judgment of the extent to which the Merrimack Education Center has carried out five strategies which we consider to be of primary importance in building a relationship.*

[Insert Table 5 here]

Although we have elsewhere* discussed the appropriateness of "inside" vs. "outside" change agents for certain change situations, we feel that in general the optimal arrangement for most comprehensive change projects is the "inside-outside" team. This arrangement, which calls for a change agent from outside the client system to work collaboratively with an agent internal to the system, provides both objectivity and familiarity. Table 5 shows that in the MEC region two types of inside-outside teams have been formed. The senior MEC staff, in working with superintendents of the region's schools, have formed change teams at the management or organizational level. It is

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*Havelock, THE CHANGE AGENT'S GUIDE TO INNOVATION IN EDUCATION, op cit.

TABLE 5: BUILDING A RELATIONSHIP

IDEAL STRATEGIES AND TACTICS	DEGREE AND MANNER OF FULFILLMENT
1. Inside-outside team	High - Senior MEC Staff { Superintendents, HUB Committee, In-Service Commission
	Medium - Field Agent { EIC's, Information Reps
2. Strategy for initial encounters	High - Slide-tape presentation, Brochures, Meetings with school board and superintendents
Ideal Features:	
a. Friendliness, Familiarity	High - Center staff homophilous with client personnel
b. Reward, Responsiveness	High - Center is perceived as being client-oriented and responsive
3. Features of an ideal relationship:	
a. Reciprocity	High - Exchange economy, 2-way flow of information on needs and resources
b. Openness	High
c. Realistic expectations	High
d. Reward	High
e. Structure	High - Most Center activities are preplanned and clearly defined
f. Equal power	High { Center does not have any official power relationship to clients other than expertise, and in no case does it attempt to exert influence through official sanctions
g. Minimum threat	High
h. Confrontation of differences	Medium
i. Involvement of all relevant parties	High - for administrators and school boards, medium for teachers (high for IGE teachers), low for students, low for parents and community
4. Awareness of Danger Signals:	Degree Danger Presents:
a. Client history of unresponsiveness	None-Medium (different districts)
b. Client uses Center as pawn	None - Autonomy of Center and strength of Center leadership prevent this from happening
c. Client already committeed to a position	Low
d. Client is powerless	None - Management level None-Medium - Information Reps.
5. Protection and Maintenance of relatioship	High - Meetings; Regular mailings; Field agent visits

Lavin's view that problem-solving is an on-going function of management: unless management personnel know change techniques and act as managers of change, no real change can take place. The collaborative change model now being stressed by the Center is one of an organizational interface between local schools and the linking agency.

Change teams of Center staff and HUB committee members have provided this organizational link in IGE schools, and successful change teams have been formed with the In-Service Commission with regard to staff development and needs assessment.

Change teams formed by the MEC field agent and the EIC's and Information Representatives in the schools have not, in our judgment, been optimally effective, and we can identify four problem sources. First, many of the Information Representatives and EIC's lack a power base within their districts; second, the information task is an "add-on" to roles which are already very demanding of time and energy. This is in fact a greater problem for those who have power (there are several superintendents and principals acting as Information Representative), and thus the situation presents a double bind. Third, there are not enough Information Representatives to go around; the primary contacts of the Representative are generally limited to the personnel in the school in which he is located. We therefore see a need for a Representative in every school, a person who can fill the role on at least a half time basis with support and sanction from the administration. Finally, the MEC field agent is already spreading himself too thin, being able to visit each Representative in the districts only about once a month. Therefore, if the number of Representatives were increased, this overload problem would be even more acute.

We should point out again that the Center has avoided, as a deliberate policy, the employment of a large number of field agents or the training of specialized change agents within the schools. While it stresses change agentry at the management level, however, the Center must come to grips with the current problems in the day-to-day linkage system.

Turning again to Table 5, it can be seen that the strategy developed by the Center for initial encounters is very successful, and the tactics employed in this regard have been discussed above under "linkage to clients." We also feel that the nine features which were proposed in the CHANGE AGENT'S GUIDE as the basis of an ideal relationship* have been realized.

Client responsiveness to the Center has varied among the different districts, and this is evident in a wide variance in Center use by district personnel. The ultimate test, however, is whether or not a district elects to continue membership in the association, and the Center has scored a good record on this point. From the time the Center became fully established until the present time, only one town has dropped out. The problem of responsiveness will be discussed further in connection with the fifth stage of problem-solving, "gaining acceptance."

B. DIAGNOSIS

The CHANGE AGENT'S GUIDE also outlines a nine-point strategy for diagnosis; the degree to which these nine points are reflected in Center projects is outlined in Table 6.

[Insert Table 6 here]

The needs assessment questionnaire is a diagnostic tool which enables school personnel at all levels to express their needs. In-depth exploration

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*Havelock, op cit.

TABLE 6: DIAGNOSIS

IDEAL STRATEGIES AND TACTICS	DEGREE OF FULFILLMENT
1. Above all, make some diagnosis. 2. Identify symptoms as stated by client.	High - Needs assessment
3. Look for second level symptoms underlying the obvious ones.	Medium - Meetings with superintendents; field agent visits
4. Infer underlying causes when you see patterns of symptoms, but do not assume them when you lack evidence.	Medium - Needs assessment relied on heavily, but more in-depth diagnosis now at management level
5. Identify opportunities and strengths as well as problems and weaknesses. 6. Look at client as a system and construct a diagnostic inventory. 7. Work with client to establish meaningful, obtainable and measureable objectives. 8. Try to get maximum participation from members of client system in diagnostic process.	High - IGE Medium - Management level Medium - Short-term projects
9. Always consider impact of diagnostic information on relationship with client - be constructive.	High - Solutions are always offered for problems which are uncovered

of system problems is carried out at the management level and in the IGE schools. As a part of the management program principals and superintendents are becoming involved in methods of assessing needs and prioritizing objectives. In meetings, seminars and in-service programs an increasing emphasis is being placed on these issues. While this strategy is just now emerging

at the management level for most schools, it has been fully realized in the IGE schools, where there is an on-going cycle of diagnosis and planning.

The Center sees itself as operating as a "temporary system" in the diagnostic process, responding to needs as they arise and changing focus as new problems emerge. The Center tends to act as a catalyst in encouraging clients to analyze their own needs. Diagnosis is followed up by responsive programs, often on a cluster basis when similar needs are expressed by more than one client system.

Whereas in the early years the Center focused its attention on building relationships, it is now concentrating more intensively on diagnostic issues.

C. ACQUIRING RELEVANT RESOURCES

Although the acquisition of resources will often be directed at finding solution alternatives to diagnosed problems, it is really an activity which should be engaged in at all stages of a change process. This fact is pointed up in Table 7, which outlines the Center's degree of fulfillment of resource acquisition strategies and tactics. In this Table ratings are given separately for strategies as they apply to the IGE program, the management or organizational problem-solving dialogue, and individual projects of lesser scope.

[Insert Table 7 here]

The building and maintenance of an awareness of the resource universe has been discussed above under "linkage to resources," and there is no doubt that this strategy has been fulfilled to a very high degree.

The second item in Table 7 refers to the acquisition of resources for seven purposes; this acquisition should not be confused with activities designed to actually carry out these seven steps. It can be seen that a full range of resources have been obtained for the IGE program, and that the

TABLE 7: ACQUIRING RELEVANT RESOURCES

IDEAL STRATEGIES AND TACTICS	DEGREE OF FULFILLMENT		
	IGE	MANAGEMENT PROGRAMS	OTHER INNOVATION EFFORTS IN THE MERRIMACK VALLEY
1. Build and maintain awareness of the resource universe	High	High	High
2. Acquire resources for seven major purposes:			
a. Diagnosis	High	High	Medium
b. Awareness	High	High	High
c. Evaluation-before-trial	High	Medium	Medium
d. Trial	High	High	Medium
e. Evaluation-after-trial	High	High	Low
f. Installation	High	Medium	Low
g. Maintenance	High	Medium	Low
3. Homing in on a specific problem and/or solution:			
a. Obtain written overview	High	High	High
b. Overview from knowledgeable person	High	High	Medium
c. Observe "live" examples	High	Medium	Medium
d. Obtain evaluation data	High	High	Medium
e. Obtain innovation on trial	High	High	Medium
f. Acquire a framework for evaluation after trial	High	High	Low-High
4. Build a permanent capacity for resource acquisition:	All Center activities tend to increase Center capacity in this regard		
a. Supportive atmosphere	High		
b. Maintain interactions	High		
c. Use creative practitioners	High (especially via in-service		
d. Use in-house experts	High staff development program)		
e. Generate realistic expectations about information	Medium (potential utility of information systems is stressed but there is no hard sell)		
f. Assess impact of past experience with resource retrieval on present client attitudes	Low (very little follow-up on how clients actually use information they are given)		
g. Demonstrate value of resources	High		
h. Structure acquisition	High		
i. Teach clients to structure acquisition	High (EIC training is one mechanism for this)		
j. Localize resources	High (Micropaks, dissemination of low cost portable fiche viewers)		

management program has been undertaken with a wide acquisition of information available in the area. While the efforts to obtain installation and maintenance materials has not been "high" up to this point, it seems probable that more information will be sought as the management program becomes fully operational. For projects of lesser scope, a full array of information is less frequently obtained. This is particularly true when requests for materials on specified topics are received by the Center; a curriculum document, for example, may be sent out with no accompanying supportive information.

The third strategy in the table refers to acquisition steps which should be taken once a diagnosis has been formed and the search for a solution is begun. Again, a wider range of resources are pursued for the IGE and management programs than for projects of more limited scope. There is some variation in the degree of emphasis placed on this strategy in different projects; laboratory products, for example, tend to be the most fully documented, tested, and evaluated, while documents from information systems often lack supportive materials.

It should also be pointed out that a homing in strategy is frequently employed before a need for a particular product or service has emerged locally. As stated earlier, as a part of its long-range planning and need forecasting, the Center attempts to keep abreast of all emerging products and services around the country and is ready to supply these when a local need surfaces.

Finally, the Center has most definitely built a permanent capacity for resource acquisition and has also been building within the client schools the capacity to utilize these resources.

D. CHOOSING THE SOLUTION

Ideal strategies for choosing a solution once a problem has been diagnosed and relevant resources obtained are outlined in Table 8. Again the degree to which these are fulfilled is rated separately for the IGE program, the management approach, and subsidiary projects.

TABLE 8: CHOOSING THE SOLUTION

IDEAL STRATEGIES AND TACTICS	DEGREE OF FULFILLMENT		
	IGE	MANAGEMENT PROGRAMS	OTHER INNOVATION EFFORTS IN THE MERRIMACK VALLEY
1. Derive implications from research	High	Medium	Low
2. Generate a range of solution ideas	High	High	Potentially High but not systematically
3. Conduct feasibility testing (potential benefit, workability, diffusibility)	High	High	Low
4. Adaptation	High	High	Low-High

The derivation of implications from research refers to a procedure of analyzing how a given piece of research would apply to a client in his own situation. The next step involves the development of a range of solution ideas based on the derived implications. Before a decision is made to adopt a particular solution, its feasibility should be examined in light of its potential benefit, workability and diffusibility in the situation to which it will be applied. This analysis should result in the adaptation of the chosen solution to fit the client's situation.

As indicated in Table 8, this overall strategy was followed to a high degree in the choosing of IGE as a vehicle for individualization, and it is currently being carried out in the design of management problem-solving techniques. Again the projects of lesser scope are somewhat slighted; while the range of solution ideas generated is great, these are not based on implications derived from research and in most cases there is little feasibility testing. Although the Center does an exceptional job of choosing and adapting laboratory products, most other materials are distributed without comment. The Center feels that its role is to offer alternatives and to leave the decision-making to the client; the rationale for this judgment is that only the client himself has a complete knowledge of his own requirements and is thus in the best position to pass judgment. The pitfall here is that research reports and other documents are frequently presented in a form which masks their utility for application. Without assistance in interpreting and adapting research material, the client is often left at sea.

This is the point at which the services of a field agent can prove invaluable, and in fact, the MEC agent is called in to help clients to make this decision in some cases. This is the exception rather than the rule, however, and this will continue to be the case in the future unless more field agents are employed or more extensive training and support is provided for the Information Representatives. What remains to be seen is whether the organizational problem-solving approach, which is now being introduced at the management level, will be replicated at the teacher level as well.

E. GAINING ACCEPTANCE

Once a solution has been decided upon, the next step is to secure its acceptance by all parties involved. Strategies to be employed in this

process are outlined in Table 9.

TABLE 9: GAINING ACCEPTANCE

IDEAL STRATEGIES AND TACTICS	DEGREE OF FULFILLMENT		
	IGE	MANAGEMENT PROGRAMS	OTHER INNOVATION EFFORTS IN THE MERRIMACK VALLEY
1. Pacing programs to match individual acceptance stages	High	High	High
2. Facilitating adoption by a system; using innovators, resistors, leaders	High	High	Medium
3. Using the right medium at the right time	High	High	Medium
4. Orchestrating a multi-media approach	High	High	Medium
5. Neutralizing opposition	High	Medium	Low
6. Keeping program flexible	High	High	High

The first strategy listed in the Table is a pacing of programs to match individual adoption rates. Diffusion research has shown that as an individual adopts an innovation, he passes through six stages: awareness, interest, evaluation, trial, adoption and integration. Different change agent activities are suitable at different stages; he may begin by promoting an innovation and informing a client about it. Next he may demonstrate the innovation and train the client for its use. Finally, he may help in the installation of the innovation and provide support to insure its continuance.

The Center is well equipped to perform all of these helping activities and all of them are engaged in simultaneiously with respect to different users.

When an innovation is to be adopted by a group, each individual must still pass through the acceptance stages described above, but this process may be facilitated by taking advantage of the natural diffusion process. People tend to follow the lead of respected individuals in a system who are termed by diffusion researchers as "opinion leaders." If an opinion leader can be enlisted to support the adoption of an innovation, other members of the group tend to follow suit. The Center has made use of this theory by training key people as Information Representatives and by working concertedly with management personnel.

Diffusion research has also shown that the use of different media are appropriate at different stages of the adoption process. While print materials are effective in creating awareness, interpersonal exchanges are important as an individual begins serious consideration and evaluation of the risks of a personal adoption decision. To take into account the different adoption rates within a group, it is important to be able to orchestrate a multi media approach. The Center has been very successful in doing this, particularly with the IGE and management programs.

Opposition to innovation is almost certain to occur at some point during a change project; it may be confined to isolated individuals or it may grow into a concerted campaign against the innovation. In either case a change agent must have the capability of neutralizing opposition in order to secure the success of the program. The Center has not developed a direct strategy for neutralizing opposition, but relies instead on a indirect influence.

Since innovations are frequently undertaken simultaneously in more than one community, a success in one school may serve to show reluctant neighbors the value of the new program. It is noteworthy and somewhat surprising that MEC staff have reported very little local opposition to any of their activities.

This fact may be related to an important advantage of a regional association. The Center is able to bring its resources to bear in those communities which are ready for innovation while letting other communities watch and wait. We thus see a replication of individual and group adoption processes at the inter-system level. The IGE program provides a case in point: thirteen schools initially elected to join the IGE Project League, and one additional school joined in after observing neighboring successes. At the present time additional schools have expressed definite interest in adopting the IGE system, and new leagues are being formed at the elementary and middle school level.

While Table 9 refers to the acceptance of specific programs within the Center, the gaining of acceptance of Center itself as an innovation should also be considered. Over time the Center has employed strategies to account for different rates of adoption by different communities and has used innovative and "light house" communities to illustrate acceptance of the Center to communities which have a more cautious or conservative approach to innovations. Although the decision of one town to drop out of the association may be cited as an instance of failure, it should also be pointed out that a neighboring town decided to enter the association after observing the benefits accruing to association members.

F. STABILIZING THE INNOVATION AND GENERATING SELF-RENEWAL

An innovation cannot be considered to be fully adopted until it becomes an integral part of the user system. Strategies must therefore be designed which insure the continuance and internalization of innovation programs. Table 10 presents a summary of the success of strategy steps employed by MEC.

TABLE 10: STABILIZING THE INNOVATION AND GENERATING SELF-RENEWAL

IDEAL STRATEGIES AND TACTICS	DEGREE OF FULFILLMENT		
	IGE	MANAGEMENT PROGRAMS	OTHER INNOVATION EFFORTS IN THE MERRIMACK VALLEY
1. Insure continuance and internalization:			
a. Reward	High	High	Medium
b. Routinization	High	*	Medium
c. Structural integration	High	High	Medium
d. Evaluation	High	High	Medium
e. Maintenance	High	*	Low
f. Adaptation	High	*	Medium
2. Create a self-renewal capacity:			
a. Positive attitude to innovation	High	High	High
b. Internal change agency	High	Medium	Low
c. External orientation	High	High	Medium
d. Future orientation	High	High	Medium
3. Disengagement	Medium	*	Low

*It is too early to predict these items for the management program.

Rewards are high for personnel in IGE schools since everyone is involved in planning and can experience the results directly. Rewards are also high for administrators in the organizational problem-solving program, but benefits

for other school personnel are less obvious. Participants in in-service courses receive direct reward in the form of graduate credit, but it is harder to perceive rewards for usage of the information system.

Routinization or continuous practice has been achieved in the IGE program, but it is difficult for us to assess this tactic with regard to more limited programs. We can only infer that use of the information system, for example, has become a habit for some portion of the region's personnel. Similarly, structural integration of the IGE and management programs may be assured by the nature of the system, but it is less clear whether other projects are structurally compatible with the systems in which they are adopted.

Evaluation is built-in in IGE,* management and the in-service program; the present study will provide an evaluation of the LINKER project as a whole. Maintenance efforts are high and continuous in the IGE program,* but we see little evidence of maintenance tactics used to insure continuance of individual innovations. Information Representatives serve as a maintenance mechanism for the linkage system as a whole, but we have pointed out above the limitations of this system.

Beyond the internalization of specific changes, a system should begin to develop internal capacities to plan and manage change programs on a continuing basis; this is what is meant by self-renewal. Such a capacity has been built up in the IGE schools, and Unit Leaders are now being used to train

*It is evident from our analysis that the IGE program has been very carefully and creatively designed for maintenance and self-renewal. On the other hand, innovations of this type involving team-teaching and significant restructuring of the school and role-transformations for staff are notoriously unstable over time because they violate so many traditional norms of the educational professions and systems. These IGE Leagues should therefore be observed carefully over a period of years to see if these self-renewal arrangements were successful where past efforts have failed.

other teachers within the school. Problem-solving capacities are being developed in other schools at the management level, and peer model teams are being introduced to assess management policies. It is anticipated that this model, if successful, will be replicated at other levels within the schools. At the present time, however, most school personnel have not developed problem-solving skills and are not aware of the extent to which they could independently link to external and internal resources. An external orientation is emerging to the extent that use is made of the Center. In addition there has been an increase in the amount of sharing of information, practices and personnel among schools in the region.

The final step in a change program, once an internal problem-solving capacity has been achieved by a client, is the disengagement of the change agent. Although the Center intends to remain in operation in the region and to provide continuing support where needed, it is necessary that it withdraw to a substantial degree from overseeing established programs. It should be able at this point to withdraw from continuing maintenance of the existing IGE League in order to coordinate other Leagues. It is beginning to do this to some extent, but we forsee a potential overload on Center capacities if it does not hasten its disengagement from the original League.

G. THE EXCHANGE ECONOMY MODEL

A strategy which is a keystone of MEC's operating policy is the "exchange economy." Payment by clients to the Center for services rendered is considered of primary importance not only for insuring the survival of the Center but also for providing feedback from clients.

Programs are modified, dropped or added according to the clients' willingness to pay for them. Any program which is self-supporting can be considered

to be a success in one important sense. This point should be emphasized: if programs were paid for by grants or other funding sources which enabled them to be offered "free" to clients, there would be no sure and immediate mechanism for ascertaining whether or not the client appreciated the programs. If the client is willing to pay, this fact may mean not only that he likes the program but also that he will become more deeply involved in it in order to gain a return on his investment.

An examination of the budget for this year shows 50% local support; because the public sector is not the private sector it is considered reasonable to expect that 50% of funds on <u>each</u> project are exchange economy related. It is suggested that this concept be applied with every project 50/50 rather than one half of the total projects funded and the other half 100% exchange.

VI. FUTURE PLANS OF THE CENTER

Lavin has stated that it is hard to develop details of specific plans for the future; his past experience with many agencies has shown him that plans often do not hold up. Great emphasis is placed on developing general orientations for the future, however, and these focus on two major interrelated goals. First, it is felt that problem-solving should become an ongoing integral part of school activities, and second, a need is seen for more direct linkage of school systems with resources.

Problem-solving is viewed as an organizational function, and the ultimate goal is to move towards self-renewing systems with management personnel as

permanent inside change agents. The emphasis which the Center places on management change process skills has been stressed in the preceding sections. To assist management in performing the necessary diagnostic role, a new needs assessment program is being instituted, with pilot testing to begin in a few buildings in the coming fall. One individual in each school building will be trained in needs assessment techniques, and he will have the responsibility for determining needs of the staff in that building. It is felt that this approach will heighten building awareness of and response to needs which emerge. The Center plans to continue its own needs assessment survey, but on a random rather than total basis. This will provide regional data while the building-by-building data will be provided by the user assessment.

Since IGE schools are reported to have achieved some degree of organizational problem-solving already, the question of whether all schools should adopt the IGE model is relevant here. The Center feels that the answer to this question is affirmative, and it feels that this can be achieved by training personnel in each school to be IGE facilitators, who would then be qualified to train the staff in their own schools. In this way the Center resources could be stretched sufficiently to enable the IGE concept to spread.

As schools achieve proficiency in problem-solving, they should become better equipped to conduct their own searches of resources. Some steps will soon be taken by the Center to enable schools to link more directly with resources. This summer the Center will assist one system in installing a curriculum information system at the local level. There are also plans for building in each community a complete information system which would be linked to a terminal at MEC.

As the schools build their own links to resources, the role of the Center may be changed. It is Lavin's thought that the schools may select their own resources and ask the Center to evaluate their selection.

As the role of the Center changes, questions as to the optimal size of the association will be raised again. While at first it might appear that self-renewing or problem-solving systems would make fewer demands on the Center (and therefore provide less financial support), the reverse seems to be true. As systems become more innovative their hunger for information also increases. The IGE schools, which make more requests to the Center than do other schools, provide an illustration of this point. Whereas when the Center was initiated, it felt it needed more than 20 communities to support it, demands on the Center have now grown almost to overload proportions. Whether or not these demands will ultimately level off or decrease is a question for the future.

VII. THE CLIENT'S PERCEPTION OF MEC

We attempted to use two approaches to acquire information directly from the client school systems serviced by the Merrimack Education Center. First, the Information Representatives were contacted by telephone to obtain their evaluation of district utilization of Center resources and the degree of impact of the Center on the district. It was hoped that a second set of data could be obtained by a mailed questionnaire to be filled out by district superintendents. The same questionnaire had been filled out by a national sample of 353 superintendents pursuant to a project carried out by Havelock at the Center for Research on Utilization of Scientific Knowledge for the U.S. Office of Education. This questionnaire elicited data on the extent of innovation in the nation's schools, procedures

used in carrying out innovation programs, and resources utilized for innovation. For the present study we wished to ascertain the impact of the Center by comparing regional questionnaire data with that of the national sample. However, only nine of the 20 superintendents returned completed questionnaires, and it was felt that this did not provide an adequate sample for analysis.

A. MEC FROM THE INFORMATION REPRESENTATIVE PERSPECTIVE

In the 1972-73 school year 19 individuals served as Information Representatives in the school districts of the MEC association. At the time this study was conducted, near the end of the school year, three of these individuals had left their systems. Of the remaining 16 Representatives, 14 were contacted directly by telephone; one, who was in the process of moving to a different building in his district, could not be contacted; and in one case we were directed to a principal when the office secretary judged that the superintendent serving as the Representative was too busy to talk to us. In another case, the designated Representative confessed that he had been inactive in this role and suggested that we might obtain information from a librarian. This was done, and we therefore have interview data obtained from 13 Information Representatives and two surrogates. Table 11 summarizes the information obtained from these interviews.

[Insert Table 11 here]

This Table defies analysis: there seems to be no relationship between any of the factors listed. Awareness of the Center among district staff, impact of the Center on the district and the percentage of staff making use of the Center do not seem to be dependent upon district size (number of pupils), the training received by the Information Representatives, or their method of informing the district personnel of Center offerings. Even taking district size into consideration there seems to be no relationship between the number of contacts the Representative had with the Center and the

TABLE II: SCHOOL DISTRICT RESPONSE TO MEC

District	Pupil Size	Info.Rep. Training	Method of Informing Staff	Staff Awareness of Center	Impact of Center	% of Staff using Center	Center→Client Contact: Yearly Freq.*	Client→Center Contact: Yearly Freq.*	Client⇔Center Total Contact: Yearly Freq.*	Primary Products and Services Used	Use of Other Resources
A	9846	None	Brochures	High	Variable (Increasing)	25%	15	10	25	ERIC, Curriculum	High
B	9130	EIC	Principals' meetings	Low (Increasing)	Increasing	15%			36	In-Service, ERIC	Low
C	6845	Informal	No System	Low-Teachers High-Admin.	Low-Teachers High-Admin.	40%	20	8-10	28-30	Research, In-Service	Low
D	5901	EIC	Newsletter, Brochures	High			14	6	16	Fiche, ERIC, In-Service, Consult.	
E	6478	None	Meetings	Low	Low-Greater in IGE Schools	20%	10	5-6	15-16	Fiche, IGE, In-Service	Medium
F	5215	EIC	Monthly Bulletin	High	High	35%	36	36	72	Research, Bibliographies, Successful Practices	Low
G	4014	EIC	Meetings, Presentations	High	High	"Small"	18	36	54	In-Service, IOTA, Documents	High
Hee	3177		No System			20%			"Infrequent"	ERIC	
I	2226	Informal	Notices, Special Interest Groups	Low	High	50%	10	25	35	ERIC, Documents, In-Service, Consultants, Proc. Help	Medium
J	1810	None	Newsletters, Fiche	High	Low (Increasing)	3%	18	36	54	ERIC, Curriculum, In-Service, Needs Assessment	Medium
K	1282		Bulletins	High	High	10-15%	10	5	15	Documents, In-Service	Low
Lee	1186				High	25%			10	ERIC, In-Service	Low
M	602		Memos, MEC Publications, Mtgs	High	Medium	10%	18	6	24	Documents	High
N	598	EIC	Brochures, Fiche	High	High	60%			36	ERIC, In-Service	Medium
O	68		Inform Librarian	Low (Increasing)	Low	5%	10-12	6	16-18	Research	Low

*"Weekly" contact = 36 times/year; "Monthly" contact = 10 times/year.
**Information obtained from source other than designated Information Representative.

percentage of staff using the Center. We recognize that this data represents only rough estimates as given by individuals and may not represent the true state of affairs. On the other hand, these individuals occupy unique and crucial positions in district linkage with the Center, and their viewpoints are therefore of considerable importance.

Our information on training received by Information Representatives for carrying out their role is incomplete, but those who had completed the EIC training program felt it had been valuable. Those who had received no training expressed the opinion that they should have.

There was some degree of variation in the effort expended by different Representatives in informing the staff in their districts of Center activities and programs. Some merely distributed brochures prepared by the Center, while others made a point of discussing MEC at meetings of principals and other staff. On the whole, however, we would judge these efforts as uncreative and minimal. One exception was the approach taken by the Representative in the Nashoba Technical High School. She occupied the position of librarian in the school, and took the initiative of ordering documents which she felt would be of interest and relevance to teachers in the school; these documents, sometimes in fiche and sometimes in hard copy, were placed in the mailboxes of individual staff members. This may represent the ideal situation in which an Information Representative is situated in each school building and has intimate knowledge of the needs of each staff member. On the other hand, a distinct contrast is provided in the case of another technical high school. In this case the Information Representative was an administrator who felt the role should properly be performed by the libarian. His method of informing the staff consisted of passing information along to the librarian. From the low awareness, impact and usage exhibited by this school, we can

infer that the job was never properly executed, perhaps because the librarian lacked sanction, support and training for performing the role responsibilities.

In most cases the Representatives felt that the staff was aware of the Center, whether or not they made use of it. This may indicate that overall the districts are only in the early stages of "adopting" the Center.

The percentage of staff making use of the Center, as estimated by the Representatives, varied between 3% and 60%. When the figures in this column were averaged, it was found that 25% of the region's staff made use of the Center. This measure was also computed on the basis of staff size in each district; using pupil size as a direct measure of staff size, it was found that 22% of staff members used the Center. The comparability of these two figures shows that there is no significant difference in Center usage in districts of different sizes.

Most Representatives reported that they were contacted by the Center once or twice a month; there was more variation in the number of times they contacted the Center, with some Representatives making contact on a weekly basis (36 times a year) while others made contact only every other month. Some Representatives did not make a distinction in the direction of contact initiated, but gave a combined figure for all contacts both ways. Most Representatives estimated that the MEC field agent had visited them two or three times during the 1972-73 school year, but two said that they had not seen the agent at all. These figures differs significantly from that of monthly visits as stated by the Center staff, and we were unable to reconcile this discrepancy.

When Representatives were asked their primary reasons for contacting the Center, they all reported making requests for ERIC, fiche, documents

or research, and ten said they had contacted the Center with regard to the in-service program. Other Center products and services were sparsely mentioned.

We asked the Representatives the extent of their use of other resources inside and outside the school system in order to compare their estimate with that of the superintendents who would be filling out questionnaire items in this area. High or low usage of the Center did not correspond either directly or inversely with usage of other resources. Some districts reported low usage of other resources because the Center fulfilled their needs to a high degree; other districts were low in usage of both the Center and other resources. Similarly, some districts used both the Center and other resources to a high degree, while others generally turned to resources other than the Center.

Finally, the Information Representatives were asked if they had any suggestions as to how the Center might improve its services to the school districts. One reported that he was very satisfied, and one had no suggestions, while the other 13 had at least one suggestion, complaint, or compliment to make. These comments are listed in Table 12 together with the number of times each was made.

[Insert Table 12 here]

Six superintendents, assistant superintendents or principals who were serving as Information Representatives commented that administrators had too many other responsibilities to fill this additional role. We not only agree with this, but we wonder how free teachers may feel to contact their superiors for information on the Center. Adding to these problems is the fact that it is often hard to reach the busy administrator; we found it

TABLE 12: COMMENTS OF INFORMATION REPRESENTATIVES

COMMENT	FREQUENCY
1. Administrators are too busy to be Information Representative Librarian or full time person should fill role	6
2. Center staff should be expanded; should have more field agent visits	6
3. More contact with other schools is needed	6
4. Center has been valuable in bringing people from different schools together	4
5. People do not make use of what the Center offers	3
6. The quality of the Center staff is excellent	2
7. Center staff should be available to come into the school and provide process help for several days at a time	2
8. Administrators should give full support to the Center	2
9. The Center is great for administrators, but not for teachers	1
10. Viewers are not used except by people in buildings where they are located	1
11. There is too much jargon in MEC materials - it turns people off	1
12. ERIC is often not relevant; the Center should offer more Successful Practices	1
13. Graduate credit should be conferred by Lowell State College and Salem State College as well as by Fitchburg	1

difficult to reach many of them ourselves and felt that teachers might easily be put off by the administrators' secretaries who screen all incoming calls.

There was also a strong feeling that although the quality of the present Center staff is excellent, the staff should be expanded. In particular,

several Representatives expressed a desire for more frequent visits from the MEC field agent. It was indicated that intensive process help as well as information delivery would be welcomed.

The Representatives felt the Center had performed a valuable service in bringing together people from schools across the region, and they expressed a desire for even greater contact. Suggestions ranged from holding conferences and fairs to having school staff and MEC staff travel around the region together to demonstrate successful programs.

Also mentioned with emphasis by three Representatives was an observation that school staff members simply did not make use of the Center's offerings. Notably, there was virtually no criticism of the Center's products and services. It would seem, then, that the resources of the Center are judged to be excellent, but there is some deficit in methods of delivery to the schools.

In closing, it should be pointed out that our sample of Information Representatives does not provide a complete picture of Center adoption. Again, we regret the lack of questionnaire data from superintendents since, as has been pointed out earlier, adoption of the Center is greatest at the management level.

GLOSSARY

AASA - American Association of School Administrators. Compiles lists of ERIC documents on a number of critical topics in educational management; these lists of documents comprise ERIC Abstracts series

AIR - American Institute for Research in the Behavioral Sciences, Palo Alto, California

ALERT - Alternatives for Learning through Educational Research and Technology - a comparative listing, compiled by the Far West Laboratory, of approximately 200 developed and tested innovative elementary educational programs and models available nationally

ASCD - Association for Supervision and Curriculum Development

EDCO - EDucation COllaborative - in the Boston region

EdSel - Educational Selections - edited abstracts from ERIC and NTIS, edited and published at Stanford by Matilda B. Paisley and William Paisley

EIC - Educational Information Consultant - concept and training program developed by the Far West Laboratory for Educational Research and Development

EPIE - "Educational Products Information Exchange" - a privately produced magazine

ERIC - Educational Resources Information Center - decentralized national library maintained by the U.S. Office of Education

ESEA - Elementary and Secondary Education Act of 1965

HUB - IGE implementation guidelines suggest that each LEAGUE organize a HUB Committee, representing teachers and administrators, to develop communication and the exchange of resources. The Project League HUB Committee consists of representatives (teachers or Unit Leaders) from each school, working with the League Facilitator

I/D/E/A - Institute for Development of Educational Activities - the educational research agency of the Charles F. Kettering Foundation; organized in 1965, I/D/E/A is now an active force for improving elementary and secondary education

IGE - Individually Guided Education - system developed by the Wisconsin Research and Development Center for Cognitive Learning

IMS - Individualized Mathematics System - developed by Laboratory of Carolinas, now marketed by Xerox Corporation

IOTA - Instrument for the Observation of Teacher Activities

IPI - Individually Prescribed Instruction - developed by Research for Better Schools

LINKER - Local Information Network of Knowledge for Educational Renewal - an MEC program funded by NCEC

MASCD - Massachusetts Association for Supervision and Curriculum Development

MEC - Merrimack Education Center

MIT - Massachusetts Institute of Technology

NCED - National Center for Educational Communication, of the U.S. Office of Education

NIE - National Institute of Education

PREP - Putting Research into Educational Practice - information packages prepared by NCEC on nationally important educational topics

RBS - Research for Better Schools

RIE - "Research in Education" - a journal of educational research and development document abstracts

RISE - Research and Information Services for Education - educational information agency sponsored jointly by Montgomery County Intermediate Unit and the Pennsylvania Department of Education. (ESEA Title III Project funded by Pennsylvania Department of Education Bureau of Curriculum Development and Evaluation, Project Director, Mr. Richard Brickley)

RUPS - Resource Utilization and Problem-Solving - skills training packages developed at the Northwest Laboratory